Performance Standard
Executes flight and/or ground operations safely IAW OPNAV 3710.7 Series, Platform NATOPS, NATOPS Instrument Flight Manual, and training rules.
Complies with USMC Admin SOP and local course rules.
Adherence to USMC FA-18 Admin SOP.

Prerequisite. Successful completion with a grade of qualified on NTPS-6XXX(Open Book Exam), NTPS-6XXX(Closed Book Exam), and NTPS-6XXX(Oral Exam).

External Syllabus Support. WST/FFS/APT (If simulator is used).

b. An example of Monthly NATOPS Emergency Procedures Simulator/Cockpit-Cabin Drill Scenario is contained in appendix F of this Manual.

c. An example of Annual NATOPS/CRM Evaluation Scenario is contained in appendix F of this Manual.

19. NATOPS Instrument Evaluation POI. Marine Aviation flight communities through their respective Model Managers shall implement community standardized NATOPS POIs for NATOPS Instrument Evaluations.

a. NATOPS Instrument POIs shall ensure aircrew are evaluated through strict adherence to NATOPS instrument procedures.

b. NATOPS instrument evaluation events shall consist of those item delineated in OPNAVINST 3710.7 Series (NATOPS), NAVAIR 00-80T-112 (NATOPS Instrument Flight Manual), FAR/AIM, and other Model Manager lead community issues.

c. NATOPS instrument academic and dynamic events shall be delineated in the 6000 phase.

d. NATOPS Instrument POIs should not solely focus on the assessment of the individual and unit, but should also include an educational element.

2. Academic Evaluation Events. X events, X.X hours.

INST-6XXX *3.0* *Open Book/Closed NATOPS Instrument Examination*

Goal. The Open Book Instrument Examination shall consist of, but not be limited to the question bank. The open book instrument examination in addition to any subject listed for coverage in OPNAVINST 3710.7 Series, the examination shall include questions on the following subjects.

1) Pertinent Navy or Marine Corps regulations, orders, and instructions.

2) Pertinent parts of the Federal Aviation Regulations (FAR), other regulations, and/or aeronautical publications which are applicable.

3) Interpretation of weather information normally used in flight planning.

Performance Standard
Achieve a minimum grade of qualified on the Open Book/Closed examination.

INST-6XXX *3.0* *Oral NATOPS Instrument Examination*

Goal. The Oral shall consist of, but not be limited to the question bank. The instructor/evaluator may draw upon their experience to propose questions of a direct and positive manner and in no way be opinionated to evaluate the airman's knowledge of the NATOPS, NATOPS Instrument Flight Manual, FAR/AIM and/or aeronautical publications which are applicable, normal/emergency instrument ground and flight procedures, weather, aircraft limitations, and performance.

Performance Standards
Achieve a minimum grade of qualified on the Oral examination.

INST-6XXX *8.0* *Instrument Ground School*

Goal. The Instrument Ground School shall be an approved Commander Naval Air Forces (CNAF) approved syllabus and at a minimum cover the following topics:

1) Spatial disorientation.

2) CNO GPS Policy Statement and GPS fundamentals to include RNAV (GPS) and Required Navigation Performance (RNP).

3) Reduced Vertical Separation Minimums (RVSM) procedures.

4) Requirements and denial reports.

5) Use of non-DoD instrument approach/departure reports.

6) Use of non-DoD GPS NOTAMS systems (Jeppeson GPS NOTAMS and Databases).

Performance Standards
Achieve a minimum grade of qualified for Instrument Ground School which also encompasses the Open/Closed, and Oral examinations.

e. Flight and/or Simulator NATOPS Instrument Evaluation Event. (X Events, X hours).

INST-6XXX *3.0* *E FA-18A/C/D S/A*

Goal. Following completion of the ground evaluation events, an instrument flight/simulator evaluation event shall be flown and completed with a grade of "Qualified." Conduct an objective evaluation of the airman's knowledge of flight planning, filing, briefing, conduct of flight under normal operating conditions, emergency procedures, closing out flight plans, and debriefing.

Requirement. Conduct INST-6XXX, INST-6XXX, and INST-6XXX. Upon successful completion of these events, the evaluator shall log the appropriate training code for tracking purposes.

Performance Standards
Executes flight and/or ground operations safely IAW OPNAV 3710.7 Series, Platform NATOPS, NATOPS Instrument Flight Manual, and training rules. All areas on the instrument flight evaluation are critical. An "Unsatisfactory" grade in any area shall result in an "Unsatisfactory" grade for the flight.

Prerequisite. Successful completion with a grade of qualified on INST-6XXX(Open/Closed Book Exam), INST-6XXX(Oral Exam), and INST-6XXX(Instrument Ground School (IGS)).

External Syllabus Support. WST/FFS/APT (If simulator is used).

e. An example of Annual NATOPS Instrument/CRM Evaluation Scenario is contained in appendix F of this Manual.

CHAPTER 7

MISSION ESSENTIAL TASK-BASED READINESS

FIGURES

TABLES

CHAPTER 7

MISSION ESSENTIAL TASK-BASED READINESS

700. PURPOSE. To provide aviation unit commanders with specific T&R guidance for meeting the requirements of MCO P1300.13D USMC Status of Resources and Training System (SORTS) and the Interim Defense Readiness Reporting System (DRRS) Policy and Procedures (dated 27 Feb 2008). For the foreseeable future, Marine Aviation units are required to report readiness in both SORTS and DRRS.

701. DRRS OVERVIEW AND DIRECTION

1. The DoD established DRRS to make readiness reporting more objective, timely, and accurate. The DRRS provides a "capabilities-based, adaptive, near real-time readiness reporting system," that requires a demonstrable link between Mission Essential Tasks (METs) and readiness reporting.

2. The Office of the Under Secretary of Defense (OUSD) DRRS Interim Implementation Guidance (Serial 2) dated 2 November 2004, directed the standardization of Core Mission Essential Task Lists (METLs) for all like-type units, and directed that all SORTS-reporting units report their readiness to accomplish Core missions, assigned missions, and OPLAN/CONPLAN missions against METLs in DRRS.

702. SORTS OVERVIEW AND DIRECTION

1. SORTS is a Joint Staff resource and unit monitoring system designed to support crisis response and deliberate planning information requirements. Since its implementation, SORTS has become more of a service tool in its reporting areas; showing the Marine Corps' ability to organize, train, maintain, and equip the operating forces for use by the combatant commands. SORTS provides information on a unit's status of selected resources (personnel and equipment) and training status, relative to its ability to undertake their assigned mission(s). SORTS data only reflects unit status at a selected point in time. In the near future, SORTS will be supplanted by the DRRS system.

2. SORTS Advisory 1-07 (090944Z FEB 07) stated, "Units with published Core Mission Essential Task Lists (METLs) are directed to use them as the method to compute their T-Level."

3. In other words, SORTS Advisory 1-07 directed usage of the **"Mission Essential Tasks Trained to Standard"** methodology, approved for use in the Chairman of the Joint Chiefs of Staff Instruction (CJCSI 3401.02). This methodology replaces the Combat Readiness Percentage (CRP) - based metric used to satisfy the previous USMC aviation SORTS standard of "Operationally Ready Crews."

703. MET WORKSHEET TRAINING STANDARDS

1. Aviation community validated METs have been documented along with training standards on MET Worksheets.

a. Marine Aviation community **MET worksheets** can be found at the following respective web addresses:

(1) Tactical Aircraft T/M/S METL:

https://www.intranet.tecom.usmc.mil/sites/atb/Lists/AIP%206%20Documents/Attachments/16/Tactical%20AVN%20METL%207%20Mar%2008.pdf

(2) MACG Squadron METL:
https://www.intranet.tecom.usmc.mil/sites/atb/Lists/AIP%206%20Documents/Attachments/17/MACG%20Sqdn%20Core%20METL%2014%20Mar%2008.pdf

2. Once community T&Rs have been updated to include Mission Skills, those communities shall have a direct Mission Skill to MET correlation. Units shall use that correlation to assess which METs are "trained to standard." Until then, communities shall view the community MET Worksheet Training Standards for each MET to assess which METs are "trained to standard." Figure 7-1.

MCT 1.3.4.1 Conduct Combat Assault Transport

Conditions:

C 1.1.1.2 Terrain Elevation
Height of immediate terrain in reference to sea level.
Descriptors: Very high (> 10,000 ft); High (6,000 to 10,000 ft); Moderately high (3,000 to 6,000 ft); Moderately low (1,000 to 3,000 ft); Low (500 to 1,000 ft); Very low (< 500 ft).

C 1.3.2.1 Light
Light available to illuminate objects from natural or manmade sources.
Descriptors: Bright (sunny day); Day (overcast day); low (dusk, dawn, moonlit, streetlight lit); Negligible (overcast night)

C.1.3.2.3 Aviation Meteorological Conditions
Current weather/flight conditions affecting flight rules next 24 hours.
Descriptors: VMC (Conditions that permit flight using external cues and a distinguishable horizon.)

C 2.7.2 Air Superiority
The extent to which operations in the air, over sea and/or, over land can be conducted with acceptable losses due to hostile air forces and air defense systems action. Descriptors: Full (Air Supremacy); General; Local.

Standards:

Personnel:

- 12 aircrews formed
- 90% of squadron T/O personnel MOS qualified and deployable
  - And Level 2 (L2) IAW ALERTS.
- 100% critical MOS fill

Equipment:

- 70% Full Mission Capable (FMC) aircraft of PAA (8 aircraft)
  OR

Upon establishment, 100 percent RFT entitlement IAW T/M/S standard.

- Operational support equipment fully supports MCT

Training:

- 8 aircrews LLL NSQ, TAC and AG Core Skill Proficient IAW T&R requirements

Output Standards:
20 sorties daily sustained during contingency/combat operations

Figure 7-1.--MET Worksheet Example.

704. CORE MODEL TRAINING REPORT (CMTR) AND MET-BASED REPORTING

1. The CMTR will provide commanders with an automated assessment tool to objectively assess unit crew training based upon the T&R Core Model metrics (Core/Mission Skill Proficiency and Combat Leadership) and the rules set forth in DRRS and SORTS.

2. The CMTR is under development for each community and will be implemented in M-SHARP when complete.

3. The CMTR consists of several parts as explained in Appendix D. The CMTR provides a readiness assessment of the unit as applicable to either DRRS or SORTS. Figure 7-2 provides a view of the parallel SORTS and DRRS readiness assessment which is further explained in the following sections.

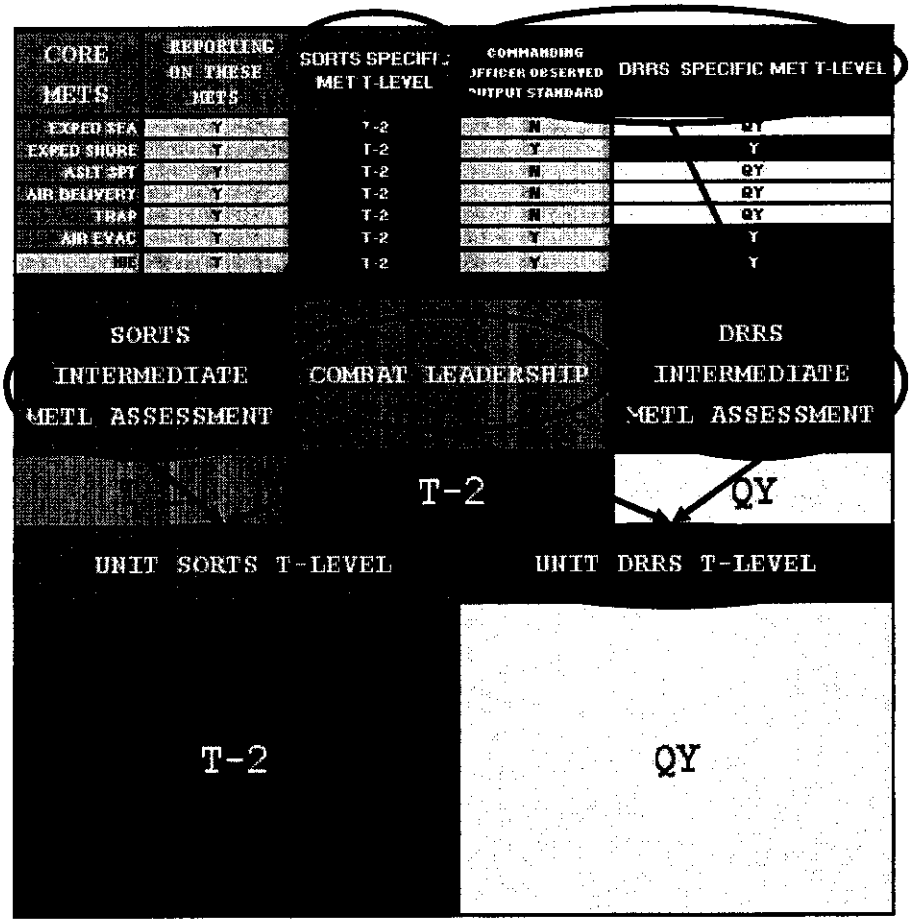


Figure 7-2.--CMTR Readiness Assessment Based Upon DRRS and SORTS Guidance.

705. T&R PROGRAM APPLICATION TO DRRS REPORTING

1. Introduction. Readiness reporting of "Mission Essential Tasks Trained to Standard" draws upon community MET Worksheets, T&R Core or Mission Skills, event logging, and proficiency rules.

2. If the community T&R has a Core Skill to MET Matrix, then the unit shall refer to its MET Worksheets to determine the Core Skill Proficiency requirements for each MET.

3. If the community T&R has a Core Skill/Mission Skill to MET Matrix, then the unit shall use T&R Mission Skill Proficiency requirements to determine its MET readiness assessment. In the future, Mission Skills will populate the MET Worksheet in the Training Standard portion.

4. The number of Mission Skill Proficient crews (for communities that have updated their T&R) and Core Skill Proficient crews (for those communities that must use the MET Worksheet Training Standard) measured against the Core Model Minimum Requirement (CMMR) provides the METs "trained to standard" assessment.

706. DRRS TRAINING ASSESSMENT AND THE CMTR. Commanders assess the ability of a unit to execute its METL (to meet Mission Objectives). Commanders shall assess the ability of the unit to execute its METL as a "Yes," a "Qualified Yes," or a "No" considering the mission as a whole. The CMTR (Appendix D) shall use the T&R Core Model tables and the MET Worksheet Training Standards to provide actual numbers of Core and Mission Skill Proficient crews and combat leaders.

707. UNIT MISSION ESSENTIAL TASK LIST ASSESSMENT. Readiness assessments should reflect military experience and sound judgment of all tasks and factors that affect the ability to meet mission objectives. Commanders shall make this assessment in accordance with the definitions found in Table 7-1.

Table 7-1.--Assessing Unit Mission Essential Task List in DRRS.

Assessment	Definition
Yes	If the majority of the Command level METs are assessed as "Yes," and the remaining METs are assessed as "Qualified Yes," then the overall mission assessment should be "Yes,"
Qualified Yes	If the majority of the Command level METs are assessed as "Qualified Yes," and the remaining METs are assessed as "Yes," then the overall mission assessment should be "Qualified Yes."
No	If any of the tasks are assessed as "No" (red), then the Commander must make a judgment as to whether the mission objectives can be accomplished. Any "No" task would normally preclude an overall mission assessment of "Yes." If the overall mission is rated other than "No" the commander should clearly explain how the plan will be accomplished despite the inability to accomplish the MET and any mitigation actions that will be taken.

708. SPECIFIC MISSION ESSENTIAL TASK ASSESSMENT

1. Commanders shall assess the ability of the unit to execute specific Mission Essential Tasks, under specified conditions, as a "Yes," a "Qualified Yes," or a "No" in accordance with the definitions found in Table 7-2.

Table 7-2.--Assessing Specific Mission Essential Tasks in DRRS.

Assessment	Definition
Yes	The unit can accomplish the specific MET to prescribed standards and conditions. The "Yes" assessment should reflect demonstrated performance in training or operations.
Qualified Yes	The unit is expected to accomplish the specific MET to standard, under most conditions, but this performance has not been observed or demonstrated in training or operations. Units assessing a specific task (MET) or mission (METL) as a Qualified "Yes" can be employed for those tasks.
No	The organization is unable to accomplish the specific MET to prescribed standards and conditions at this time.

2. In order to satisfy the requirement for "demonstrated performance" for a specific MET, units must execute the MET Worksheet Output Standard for the specified MET.

709. MISSION ESSENTIAL TASK CORE MODEL TRAINING LEVEL (CMTL) EVALUATION FOR DRRS

1. For an explanation of CMTL development and use, see Appendix D.

2. The aviation DRRS training assessment process provides unit commanders a training assessment of each MET as well as the entire unit METL. Unit commanders use these assessments, along with assessments of personnel and equipment resources, to determine their overall readiness. The DRRS training assessment compares several inputs from the T&R Core Model tables to DRRS readiness definitions. In the future, M-SHARP will play a key role by providing the automated CMTR and the logged data and business rules to accomplish the assessment. See Figure 7-3 for a process overview.

a. Individual T&R Event Proficiency. M-SHARP tracks and displays individual aircrew T&R event proficiency and combat leadership designations.

b. Crew Core and/or Mission Skill Proficiency

(1) For units operating single-piloted aircraft, a Core Skill Proficient and/or Mission Skill Proficient crew is defined as a pilot who attained and maintained a "proficient" status in all Core and/or Mission Skill events.

(2) For "crew-served" aircraft, a CSP/MSP crew is defined by each aircraft model/series T&R Manual. For example the crew definition for the UH-1N Core Skill of SWD is 2 Pilots, 1 Crew Chief, 1 Aerial Observer/Aerial Gunner. A CSP/MSP Crew is formed when each of the crew positions listed can be filled with individuals who have attained and have maintained a "proficient" status in all T&R Manual designated events, by Core and Mission skill.

(3) M-SHARP compares event proficiency status with T&R rules for Core and Mission Skill Proficiency. At this point, the CMTR will "build and compare" CSP/MSP crews to the T&R CMMR. Each Core and Mission Skill will then be assigned a CMTL value between 1 and 4 depending on the results of the crew CMMR comparison.

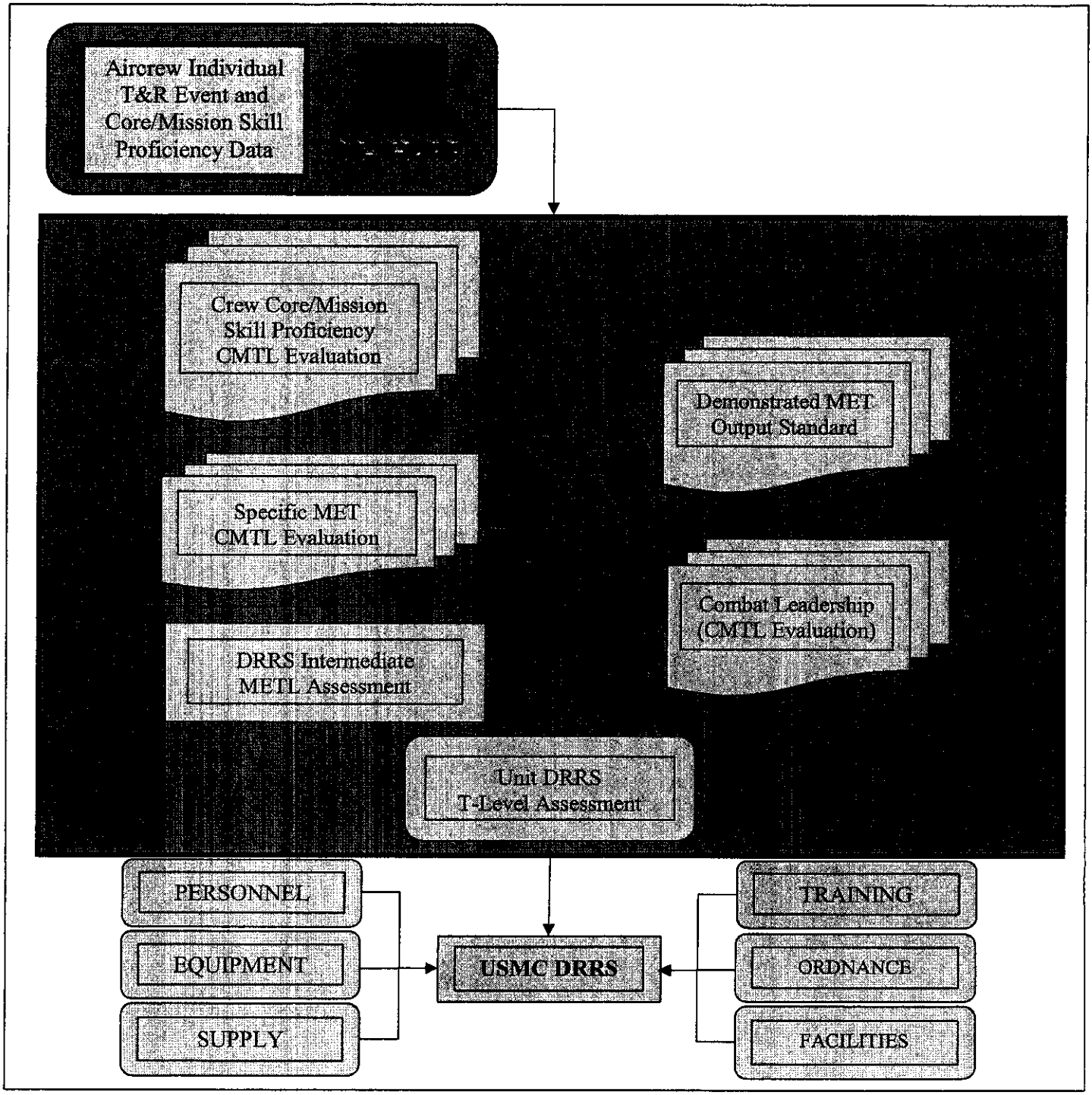


Figure 7-3.--Marine Aviation DRRS Training Assessment Process.

c. Specific MET CMTL Evaluation. Core Model Training Levels (Appendix D) assist in evaluating the relationship between each MET and the Core or Mission Skills that comprise the specific MET.

(1) In order to provide a valid DRRS training assessment, the T&R-based CMTR leverages DRRS guidance and applies T&R Core Model proficiency rules and other Core Model guidance. The result is the DRRS T-Level readiness portion of the overall DRRS readiness assessment. The Core Model application to the DRRS initiative

matches Core and Mission Skill Proficiency to corresponding METs, commanding officer observation of unit performance to the MET output standards, and Unit Combat Leadership. The term "trained to standard" indicates that the unit has met the T&R CMMR for the applicable Core or Mission Skills. The CMTR DRRS training readiness assessment shall comply with Table 7-3.

Table 7-3.--Assessing Overall MET Training Readiness in DRRS.

Assessment	Definition
Yes	Unit "trained to standard" in a majority of METs by: 1. Unit meets the T&R CMMR (CMTL-1 or CMTL-2) requirements for each corresponding Core or Mission Skill and; 2. Unit **has demonstrated** its ability to perform a majority of METs to the MET output standard and; 3. Unit meets the T&R CMMR (CMTL-2 or better) requirements for Unit Combat Leadership.
Qualified Yes	Unit "trained to standard" in a majority of METs by: 1. Unit meets the T&R CMMR (CMTL-2 or better) requirements for each corresponding Core or Mission Skill and; 2. Unit **has not demonstrated** the ability to perform to the MET output standard in a majority of unit METs and; 3. Unit meets the T&R CMMR (CMTL-2) requirements for unit Combat Leadership.
No	Unit is not "trained to standard" in one or more METs since it does not meet either of the following: 1. Unit does not meet T&R CMMR (CMTL-2 or better) requirements in one or more METs or; 2. Unit does not meet the T&R CMMR (CMTL-2) requirements for unit Combat Leadership.

(2) Specific MET CMTL Evaluation with Mission Skills. For a community that utilizes Mission Skills, the MET of "Combat Assault Transport" corresponds to the Mission Skill of Combat Assault Transport. In order to obtain a CMTL-2 rating for that specific MET, the unit must possess the T&R CMMR number of proficient crews in the Combat Assault Transport Mission Skill. In the Table 7-4 example, the unit is short one crew from its CMMR and therefore maintains a CMTL-3 rating for this specific MET.

Table 7-4.--Specific MET CMTL Evaluation Using Mission Skills.

Mission Essential Task	Mission Skill	T&R CMMR Crews	ACTUAL MSP CREWS O/H	CMTL
MCT 1.3.4.1. Combat Assault Transport	ASLT TRANSPORT	8	7	3

(3) Specific MET CMTL Evaluation and Core Skills. For a community without established Mission Skills, each of the Core Skills that comprise the MET is considered according to the MET Worksheet Training Standard. For example, the MET of Combat Assault Transport is comprised of three Core Skills as shown in the MET Worksheet and Table 7-5. In order to obtain a CMTL-2 rating for the specific MET of Combat Assault Transport, the unit must possess the T&R CMMR number of proficient crews in all Core Skills that map to the MET.

Table 7-5.--Specific MET CMTL Evaluation Using Core Skills.

Mission Essential Task	Core Skills	T&R CMMR Crews	ACTUAL CSP CREWS O/H	CMTL
MCT 1.3.4.1 Combat Assault Transport	NSQ LLL	8	9	2
	TAC	8	7	3
	AG	8	8	2

(4) Commanding Officer Observation of MET Output Standard. Commanders must observe unit execution of the MET Worksheet Output Standard for specific METs in order to place a "Y" in the "Commanding Officer Observed Output Standard" section of the CMTR.

(5) Specific MET Evaluation Display. Each specific MET assessment is based upon the T&R Program and guidance provided in Tables 7-2 and 7-3. The end results will be displayed as shown in Table 7-6.

Table 7-6.--DRRS Specific MET Output Standard.

COMBAT LEADERSHIP	DRRS INTERMEDIATE METL ASSESSMENT
T-2	NO

d. Intermediate METL (Mission) Assessment. The Intermediate METL assessment for DRRS is a comparison of the specific MET assessments and Table 7-1 rules. The Unit METL assessment will be displayed on the CMTR with the Combat Leadership assessment. In Table 7-7, the DRRS Intermediate METL assessment indicates a "No" in accordance with DRRS guidance.

Table 7-7.--DRRS METL Assessment and Combat Leadership Display.

CORE METS	REPORTING ON THESE METS	SORTS SPECIFIC MET T-LEVEL	COMMANDING OFFICER OBSERVED OUTPUT STANDARD	DRRS SPECIFIC MET T-LEVEL
EXPED SEA	Y	T-2	N	QT
EXPED SHORE	Y	T-3	Y	N
ASLT SPT	Y	T-3	N	N
AIR DELIVERY	Y	T-2	N	QT
TRAP	Y	T-2	Y	Y
AIR EVAC	Y	T-2	Y	Y

e. Combat Leadership CMTL Evaluation. The training assessment will compare actual numbers of Combat Leaders to the T&R Combat Leadership table metrics. For example, if a CH-46E unit possessed a CMTL-2 level of CSP/MSP crews in 90% of its METs but did not achieve CMMR in just one Combat Leadership designation, that unit would receive a degraded CMTR Unit MET assessment even if the unit had an excess of Combat Leaders above CMTL-2 in other areas. See Table 7-8.

Table 7-8.--Unit Combat Leadership CMTL Evaluation.

CH-46E Unit Designation	CMMR Required	On/Hand	CMTL
HAC	12	13	2
SECTION LEADER	6	9	1
DIVISION LEADER	4	6	1
FLIGHT LEADER	2	1	4
AIRBORNE MISSION COMMANDER	2	2	2

f. Unit DRRS METL Training Assessment. The CMTR will provide the commander with an objective training rating based upon the M-SHARP data, the T&R rules of proficiency, and the DRRS training assessment rules. The Unit DRRS training will equate to the lower of either the Unit MET assessment or Unit Combat Leadership assessment. A unit that possesses the requisite number of Core and/or Mission Skill Proficient crews without the requisite number of Combat Leaders may experience a degradation in capability which should be reflected in the training assessment. Conversely, if the requisite number of Combat Leaders is achieved without the MET-trained crews, the same result occurs. See Table 7-9.

Table 7-9.--Unit DRRS Training Assessment.

SORTS INTERMEDIATE METL ASSESSMENT	COMBAT LEADERSHIP	DRRS INTERMEDIATE METL ASSESSMENT
T-3	T-2	NO
UNIT SORTS T-LEVEL		UNIT DRRS TRAINING ASSESSMENT
T-3		NO

710. UNIT DRRS TRAINING ASSESSMENT MATRIX. Table 7-10 displays each possible combination of Unit DRRS METL Assessments and Combat Leadership CMTLs to provide an objective, overall Unit DRRS training assessment for the commander's use in reporting his unit's readiness in DRRS.

Table 7-10.--Unit DRRS Training Assessment Matrix.

	Combat Leadership CMTL Evaluation			
Intermediate METL Assessment	CMTL-1	CMTL-2	CMTL-3	CMTL-4
YES	YES	YES	NO	NO
QUALIFIED YES	QUAL YES	QUAL YES	NO	NO
NO	NO	NO	NO	NO

711. T&R PROGRAM APPLICATION TO SORTS REPORTING

1. Introduction. Readiness reporting of "Mission Essential Tasks Trained to Standard" draws upon community MET Worksheets, T&R Core or Mission Skills, event logging, and proficiency rules.

2. If the community T&R has a Core Skill to MET Matrix, then the unit shall refer to its MET Worksheets to determine the Core Skill Proficiency requirements for each MET.

3. If the community T&R has a Core Skill/Mission Skill to MET Matrix, then the unit shall use T&R Mission Skill Proficiency requirements to determine its MET readiness assessment. In the future, Mission Skills will populate the MET Worksheet in the Training Standard portion.

4. The number of Mission Skill Proficient crews (for communities that have updated their T&R) and Core Skill Proficient crews (for those communities that must use the MET Worksheet Training Standard) measured against the Core Model Minimum Requirement (CMMR) provides the METs "trained to standard" assessment.

712. SORTS T-LEVEL TIERS AND THE CMTR. The familiar SORTS T-level tiers (T-1, T-2, T-3, T-4) will continue to be used for the training readiness assessment within SORTS. The CMTR (Appendix D) shall use the T&R Core Model tables and the MET Worksheet Training Standards to provide actual numbers of Core and Mission Skill Proficient crews and combat leaders. Figure 7-4 depicts the T&R Program data that governs the SORTS automated T-Level assessment provided by the CMTR.

713. MISSION ESSENTIAL TASK LIST ASSESSMENT. The SORTS METL Training Readiness Assessment shall be evaluated on a scale of T-1 through T-4 in accordance with Table 11 below. The term "trained to standard" indicates that the unit has met the T&R CMMR for the applicable Core or Mission Skills.

Table 7-11.--SORTS METL Assessment Evaluation.

T-1	Unit "trained to standard" in 85% (or more) of METs
T-2	Unit "trained to standard" in 70% (or more) of METs
T-3	Unit "trained to standard" in 55% (or more) of METs
T-4	Unit "trained to standard" in less than 55% of METs

714. SPECIFIC MISSION ESSENTIAL TASKS ASSESSMENT. A specific MET may be assessed as T-1 through T-4 based upon CMMR standards of Core or Mission Skill Proficiency. This calculation may be accomplished manually using M-SHARP logged data or in an automated manner via the CMTR methodology. A specific MET is considered "trained to CMTL-X standard" or is "Not MET Ready" in accordance with Table 7-12. METs assessed at CMTL-1 or CMTL-2 are considered "trained to standard."

Table 7-12.--SORTS MET-Specific Assessment.

T-1	A specific MET is "trained to T-1 standard" if the following exists: 1. Unit meets the T&R CMMR (CMTL-1) requirements for the corresponding Mission Skill or; 2. Unit meets the T&R CMMR (CMTL-1) requirements in all corresponding Core Skills in accordance with the MET Worksheet Training Standard.
T-2	A specific MET is "trained to standard" if the following exists: 1. Unit meets the T&R CMMR (CMTL-2) requirements for the corresponding Mission Skill or; 2. Unit meets the T&R CMMR (CMTL-2) requirements in all corresponding Core Skills in accordance with the MET Worksheet Training Standard.
T-3	A specific MET is "trained to T-3 standard" if the following exists: 1. Unit meets the T&R CMMR (CMTL-3) requirements for the corresponding Mission Skill or; 2. Unit meets the T&R CMMR (CMTL-3) requirements in all corresponding Core Skills in accordance with the MET Worksheet Training Standard.
T-4	A specific MET is assessed as "T-4" if the following exists: 1. Unit does not meet (or exceed) the T&R CMMR (CMTL-3) requirements for the corresponding Mission Skill or; 2. Unit does not meet (or exceed) the T&R CMMR (CMTL-3) requirements in all corresponding Core Skills in accordance with the MET Worksheet Training Standard.

715. MISSION ESSENTIAL TASK CMTL EVALUATION FOR SORTS. The SORTS T-Level assessment compares several inputs from the T&R Core Model tables to SORTS T-Level readiness definitions to provide a logical T-level estimate for commanders. M-SHARP will play a key role in the future by providing the automated CMTR and the logged data and business rules to accomplish the assessment. See Figure 7-4 for an overview of the SORTS T-Level assessment.

1. Individual T&R Event Proficiency. M-SHARP tracks and displays individual aircrew with respect to T&R event proficiency and combat leadership designations.

2. Crew Core and Mission Skill Proficiency

a. For units operating single-piloted aircraft, a Core Skill Proficient and/or Mission Skill Proficient crew is defined as a pilot who has maintained a "proficient" status in all Core and/or Mission Skill events.

b. For "crew-served" aircraft, a CSP/MSP crew is defined by each aircraft model/series T&R Manual. For example the crew definition for the UH-1N Core Skill of SWD is 2 Pilots, 1 Crew Chief, 1 Aerial Observer/Aerial Gunner. A CSP/MSP Crew is formed when each of the crew positions listed can be filled with individuals who have attained and have maintained a "proficient" status in all T&R Manual designated events, by core/mission skill, per the particular model/series aircraft T&R Manual.

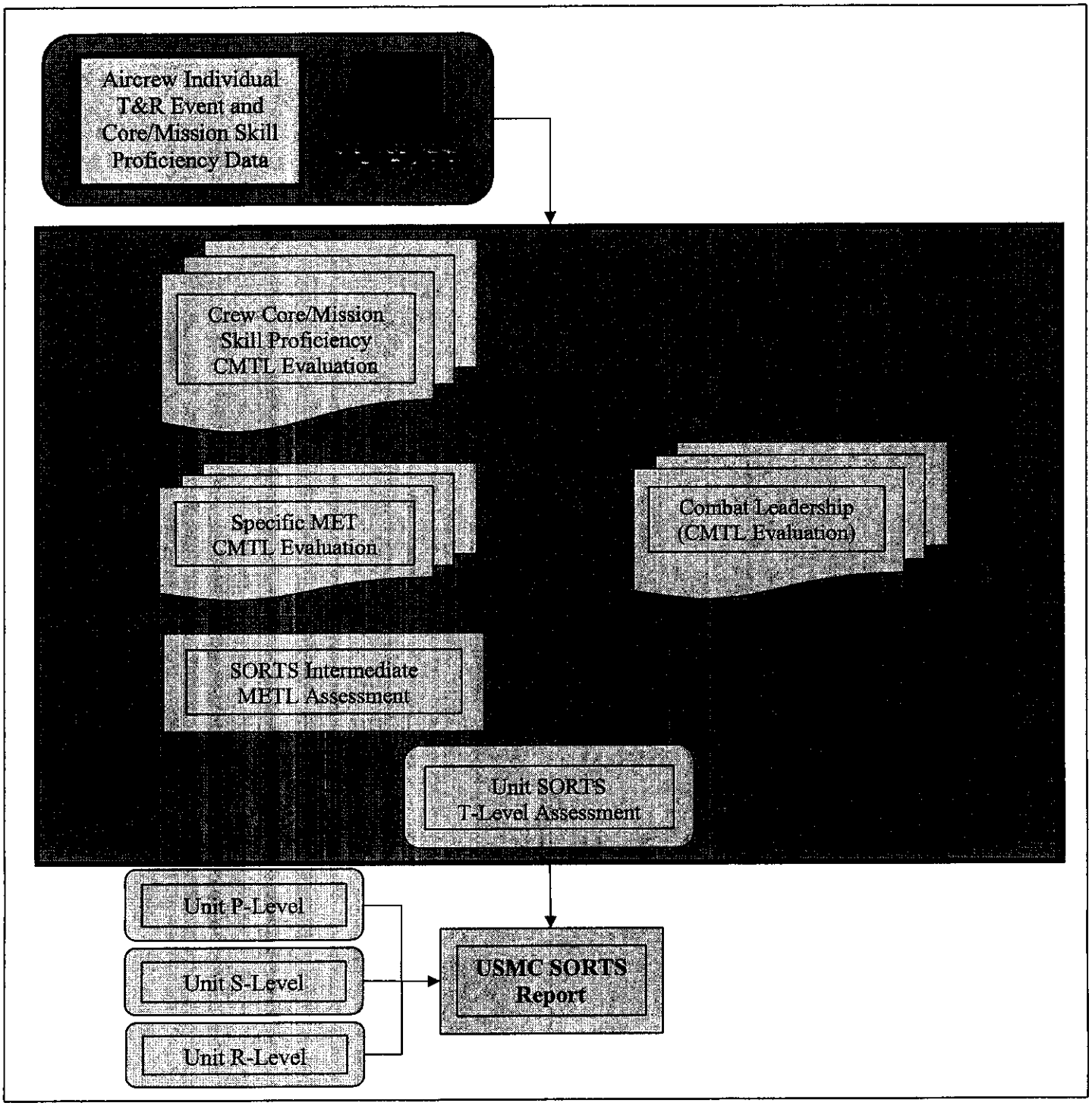


Figure 7-4.--Marine Aviation SORTS T-Level Assessment Overview.

c. M-SHARP compares event proficiency status with T&R rules for Core and Mission Skill Proficiency. At this point, the CMTR will "build and compare" CSP/MSP crews to the T&R CMMR. Each Core/Mission Skill will then be assigned a CMTL value between 1 and 4 depending on the results of the crew CMMR comparison.

3. Specific MET CMTL Evaluation. Core Model Training Levels (Appendix D) assist in evaluating the relationship between each MET and the Core and Mission Skills that comprise the specific MET.

a. Specific MET CMTL Evaluation with Mission Skills. For a community that utilizes Mission Skills, the MET of "Combat Assault Transport" corresponds to the Mission Skill of Combat Assault Transport. In order to obtain a CMTL-2 rating for that specific MET, the unit must possess the T&R CMMR number of proficient crews in the Combat Assault Transport Mission Skill. In the Table 7-13 example, the unit is short one crew from its CMMR and therefore maintains a CMTL-3 rating for this specific MET.

Table 7-13.--Specific MET CMTL Evaluation Using Mission Skills.

Mission Essential Task	Mission Skill	T&R CMMR Crews	ACTUAL MSP CREWS O/H	CMTL
MCT 1.3.4.1. Combat Assault Transport	ASLT TRANSPORT	8	7	3

b. Specific MET CMTL Evaluation and Core Skills. For a community without established Mission Skills, each of the Core Skills that comprise the MET is considered according to the MET Worksheet Training Standard. For example, the MET of Combat Assault Transport is comprised of three Core Skills as shown in the MET Worksheet and Table 7-14. In order to obtain a CMTL-2 rating for the specific MET of Combat Assault Transport, the unit must possess the T&R CMMR number of proficient crews in all Core Skills that map to the MET.

Table 7-14.--Specific MET CMTL Evaluation Using Core Skills.

Mission Essential Task	Core Skills	T&R CMMR Crews	ACTUAL CSP CREWS O/H	CMTL
MCT 1.3.4.1 Combat Assault Transport	NSQ LLL	8	9	2
	TAC	8	7	3
	AG	8	8	2

4. Specific MET Evaluation Display. The CMTR will display each MET assessment on the CMTR and based upon the T&R and guidance provided as shown in Table 7-15.

Table 7-15.--Specific MET T-Level Assessment.

CORE METS	REPORTING ON THESE METS	SORTS SPECIFIC MET T-LEVEL
EXPED SEA	Y	T-2
EXPED SHORE	Y	T-3
ASLT SPT	Y	T-3
AIR DELIVERY	Y	T-2
TRNP	Y	T-2
AIR EVAC	Y	T-2
NIE	Y	T-2

5. SORTS Intermediate METL Assessment. The SORTS Intermediate METL assessment is a comparison of the specific MET assessments and Table 7-11 rules. The Unit METL assessment will be displayed on the CMTR with the Combat Leadership assessment as shown in Table 7-16.

Table 7-16.--SORTS METL Assessment and Combat Leadership Display.

SORTS INTERMEDIATE METL ASSESSMENT	COMBAT LEADERSHIP
T-3	T-2

6. Combat Leadership CMTL Evaluation. The T-Level assessment will compare actual numbers of Combat Leaders to the T&R Combat Leadership table metrics. For example, if a CH-46E unit possessed a CMTL-2 level of CSP/MSP crews in 90% of its METs but did not achieve CMMR in just one Combat Leadership designation, that unit would receive a CMTR generated Unit MET assessment of T-3 even if the unit had an excess of Combat Leaders above CMTL-2 in other areas. See Table 7-17.

Table 7-17.--Unit Combat Leadership CMTL Evaluation.

CH-46E Unit Designation	CMMR Required	On-Hand	CMTL
HAC	12	12	2
SECTION LEADER	6	6	2
DIVISION LEADER	4	6	1
FLIGHT LEADER	2	4	1
AIRBORNE MISSION COMMANDER	2	2	2

7. Unit SORTS T-Level Assessment. The CMTR will provide the commander with an objective T-Level rating based upon the M-SHARP data, the T&R rules of proficiency, and the SORTS rules for T-Level. The Unit SORTS T-Level will equate to the lower of either the Unit SORTS Intermediate METL assessment or Unit Combat Leadership assessment. A unit that possesses the requisite number of Core and/or Mission Skill Proficient crews without the requisite number of Combat Leaders may experience a degradation in capability which should be reflected in the T-Level assessment. Conversely, if the requisite number of Combat Leaders is achieved without the MET-trained crews, the same result occurs as shown in Table 7-18.

Table 7-18.--Unit SORTS T-Level Assessment.

SORTS INTERMEDIATE METL ASSESSMENT	COMBAT LEADERSHIP	DRRS INTERMEDIATE METL ASSESSMENT
T-3	T-2	NO
UNIT SORTS T-LEVEL		UNIT DRRS TRAINING ASSESSMENT
T-3		NO

716. UNIT SORTS T-LEVEL ASSESSMENT MATRIX. To simplify the Unit SORTS Assessment, Table 7-19 displays each possible combination of CMTL values for Unit MET and Combat leadership assessments along with corresponding, overall Unit T-Level assessment for the commander's use.

Table 7-19.--Unit SORTS T-Level Assessment Matrix.

	Combat Leadership CMTL Evaluation			
Unit METL Assessment	CMTL-1	CMTL-2	CMTL-3	CMTL-4
CMTL-1		T-2	**T-3**	T-4
CMTL-2	T-2	T-2	**T-3**	T-4
CMTL-3	**T-3**	**T-3**	**T-3**	T-4
CMTL-4	T-4	T-4	T-4	T-4

APPENDIX A

GLOSSARY OF TERMS

Advanced Systems Tactics and Ordnance (ASTO) - Any flight designed to develop proficiency conducting day, night IMC system tactics and ordnance deliveries using intra-cockpit aircraft weapon systems displays.

Aerial Delivery (AD) - Any flight in which aircraft release parachuting personnel, sensors, equipment or supplies (other than ordnance).

Aerial Gunner/Observer (AGO) - Individual who assists the Crew Chief in the cabin of a helicopter and has been thoroughly briefed by the Aircraft Commander on lookout doctrine, obstacle clearance calls, ICS utilization and emergencies. Performing as a flight crewmember, the Aerial Gunner/Observer shall have a current flight physical, aviation physiology training, N5 water survival training, N7 HEEDS training, annual NATOPS evaluation and wear all flight equipment per the OPNAVINST 3710.7 series (see definition of Flight Crew in OPNAVINST 3710.7).

Aerial Photography (APH) - Any flight designed to develop hand held camera proficiency.

Aerial Refueling (AR) - Any flight designed to develop the ability of aircrews to perform tactical aerial refueling operations, day and night, to include helicopter in-flight refueling from a ship.

Air Combat Maneuvering (ACM)- See OPNAVINST 3710.7 for definition.

Air Mission Commander (AMC) - An experienced aviator who has in-depth knowledge of the MACCS, airspace management, fire support coordination, fixed and rotary wing operations and capabilities. The AMC is responsible for the accomplishment of the air mission.

Airborne Moving Target Indicator (AMTI) - Any flight designed to develop proficiency conducting day and night system ordnance deliveries on moving targets.

Aircrew (AC) - A collective term that applies to all categories of personnel in a flight status.

Aircrew Performance Record (APR) - The squadron training officer maintains the APR per Appendix E of this Manual.

Air-to-Ground (AG) - Any VMC/IMC flight designed to attack surface targets with conventional unguided ordnance.

All Weather Close Air Support (AWCAS) - Any systems ordnance flight flown in instrument or simulated instrument conditions.

All Weather Intercept (AWI) - Any single aircraft, air-to-air weapons systems intercept, commenced beyond visual range where weapons engagement does not depend on visual identification.

Alternate Insertion/Extraction (AIE) techniques- Any flight employing the various insertion and extraction techniques employed by the MV-22 (i.e. SPIE, FASTROPE, Rappelling.)

Apprentice METOC Analyst (AMA) - An entry level Meteorological and Oceanographic (METOC) Services Marine who has received basic and intermediate training in METOC sciences. The AMA is responsible for conducting METOC sensing of surface and upper

atmospheric elements and reporting of the elements. The AMA continues to hone proficiency in the Core Skills of analysis and forecasting of METOC parameters through supervised forecast product generation.

Arctic Weather Training (AWT) - Any flight designed to train for operations in an arctic environment.

Assault Support Coordinator (Airborne) (ASC(A)) - An experienced aviator who operates from an aircraft to provide coordination and procedural control during assault support operations. The ASC(A) acts as an agency of the MACCS and is an airborne extension of the DASC or HDC.

Battlefield Illumination (BI) - Any flight designed to deliver aircraft parachute flares.

Brief - Conducted prior to a flight/event to discuss all aspects of the item or a discussion of the evolution as a whole.

Cargo and Passenger Loading (CPL) - Any flight required to carry passengers and/or cargo.

Carrier Qualification (CQ) - Any flight designed to demonstrate the aircrew's ability to conduct shipboard landing operations day or night.

Casualty Evacuation (CASEVAC) - Any flight designed to demonstrate casualty evacuation procedures.

Categories of Training (CAT) - Conversion matrix for USN to USMC Program of Instruction (POI).

a. Category I (CAT I). This equates to the Basic POI.

b. Category II (CAT II). This equates to the Basic POI.

c. Category III (CAT III). This equates to the Refresher POI.

d. Category IV (CAT IV). This equates to the Modified Refresher POI.

e. Category V (CAT V). Other POIs not described above.

Certification (CERT) - A certification refers to the evaluation process conducted during syllabus event(s) by a designated instructor or authorized personnel for the purpose of ascertaining proficiency of a crewmember as a prerequisite to qualification or designation. For aviation ground communities, a certification serves to ascertain one-time proficiency evaluation for a given position.

Combined Strike Tactics (CST) - Tactical training sorties in which several aircraft types join in a combined mission: Alpha Strike, Helo Assault, etc.

Command and Control Warfare (C2W) - The integrated use of operational security, military deception, psychological operations, electronic warfare, and physical destruction, mutually supported by intelligence to deny information to, influence, or destroy adversary command and control capabilities while protecting friendly command and control capabilities against such action.

Community - A collective term used to identify all aviation units and personnel associated with an individual Aviation T&R Manual (E.G. model aircraft, MACCS system, aviation ground MOS).

Confined Area Landings (CAL) - Any landing pattern work flown to sites or landing zones in which terrain/obstacle clearance techniques and cautions become the primary objective.

Core Capability - A unit-centered training readiness calculation that assists operations departments and commanding officers in determining a percentage-adjusted MET Output Standard given crew manning constraints. Closely related to Core METL output standards, unit Core Capability is a calculated measure of performance that may differ from the MET Output Standard since expected ability to achieve output standards may be reduced as crew manning is reduced. Core Capability is not a reportable item but may assist units in predicting achievable output standards based on their specific crew manning percentages. Core Capability is primarily used in determining manning-adjusted CMMR per appendix D (Mission Essential Task-Based Core Model Report).

Core Competency - Unit Core Competency is a collective term that entails requirements, capabilities, and information delineated in the applicable unit mission statement, METL, appropriate T/O information, Output Standards, Core Model Minimum Requirements, and supporting tables such as METL/Core Skill matrix and qualification/designation tables.

Core Competency Model - The foundation of every T&R program, the core competency model, or "Core Model" establishes the basic structure around which each T&R program is created. The core competency model, contained in the opening chapters of each specific T&R manual, links community Mission Statements, Mission Essential Task Lists, Output Standards, Core Skill Proficiency Requirements and Combat Leadership Matrices.

Core Competency Resource Model (CCRM) - The Marine Corps Unit Core Competency Resource Model directly links the T&R program with USMC flying hour and readiness reporting (SORTS) programs. The CCRM, accredited by the Commandant of the Marine Corps, generates annual sortie and flight hour requirements (broken down by training, support and operational category) for maintaining selected T-Level readiness ratings for each tactical aviation squadron.

Core Model Minimum Requirement (CMMR) - The Community CMMR reflects the ability of a unit to perform its Output Standards. Unit CMMR is defined in terms of aggregate unit crew Mission Skill Proficiency (MSP) and leadership requirements. Unit CMMR is reflected in core model tables (Minimum Unit Core Skill Proficiency Requirements, Minimum Combat Leadership Requirements).

Core Skill (CS) - Fundamental, environmental, or conditional capabilities required to perform basic functions (normally 2000 phase). These basic functions serve as tactical enablers that allow crews to progress to the more complex Mission Skills. The Core Model requires individual and unit proficiency in Core Skills. Core Skills are introduced in FRS and entry-level school training and are further refined and expanded at the squadron level. Core Skills consist of like T&R events and are normally delineated as T&R stage titles

Core Skill Proficiency (CSP)

a. Individual CSP - An individual who has attained and maintained a "proficient" status in all T&R designated events, by Core Skill. Individual CSP shall be based on T&R Individual CSP Attain and Maintain requirements.

b. Crew-Served CSP - For "crew-served" aircraft/system, a "crew" is defined by each community for each Core Skill in accordance with the applicable T&R manual. For example, the crew definition for the Core Skill "Confined Area Landing" for the CH-53E community is 2 Pilots, 1 Crew Chief, 1 Aerial Observer/Gunner. A CSP Crew is a crew where each of the crew positions listed can be filled with an individual who has attained and has maintained a "proficient" status in all T&R designated events, by Core Skill.

c. Unit CSP - Unit CSP shall be defined in terms of numbers of individuals or crews required to be proficient in each Core Skill. A CSP Unit (T-2) maintains a minimum number of CSP Crews in each Core Skill, in accordance with rules and methods set forth in MCO P3500.14 series.

Crew Resource Management (CRM) - Replaces Aircrew Coordination Training (ACT) term.

Crewmember - A collective term that applies to all categories of personnel who operate an aircraft or system.

Currency - Currency is a control measure used to provide an additional margin of safety based on exposure frequency to a particular skill. It is a measure of time since the last event demanding that specific skill. Loss of currency does not affect a loss of CRP. For example, currency determines minimum altitudes in rules of conduct based upon the most recent low altitude fly date. Specific currency requirements for individual type mission profiles can be found in Chapter 5.

Defensive Air Combat Maneuvering (DACM) - The maneuvering of attack or utility helicopters in response to an airborne threat.

Defensive Combat Maneuvers (DCM) - Flights in the MV-22 syllabus including the defensive tactics versus airborne threats.

Defensive Measures (DM) - Flights in assault support helicopters utilizing defensive tactics versus airborne threats.

Defensive Tactics (DEFTAC) - Those aircraft maneuvers performed by aircraft possessing no offensive armament in response to airborne threats. Performed as last ditch tactics when efforts to escape detection have failed.

Demonstration - The description and performance of a particular maneuver/event by the instructor, observed by the PUI/student. The PUI/student is responsible for knowledge of the procedures prior to the demonstration of a required maneuver/student.

Desert Operations (DES) - Any flight designed to train for operations in a desert environment.

Designation - A designation is a status assigned to an individual based on leadership ability. A designation is a command specific and remains in effect until removed for cause. Specific designation requirements shall be delineated in individual T&R manuals. Commanders shall issue a designation letter to the individual upon the occasion of original designation, with appropriate copies, for inclusion in the NATOPS jacket and IPR.

Discuss - An explanation of systems, procedures, or maneuvers during the brief, in-flight/mission, or post-flight/mission.

Dissimilar Air Combat Tactics (DACT) - Tactical training conducted between dissimilar aircraft models.

Electronic Attack (EA) - That division of electronic warfare involving the use of electromagnetic energy, directed energy, or anti-radiation weapons to attack personnel, facilities, or equipment with the intent of degrading, neutralizing, or destroying enemy combat capability and is considered a form of fires. EA includes: 1) actions taken to prevent or reduce an enemy's effective use of the electromagnetic spectrum, such as jamming and electromagnetic deception; and 2) employment of weapons that use either electromagnetic or directed energy as their primary destructive mechanism (lasers, radio frequency weapons, particle beams).

Electronic Protection (EP) - Division of electronic warfare involving passive and active means taken to protect personnel, facilities, and equipment from any effects of friendly or enemy employment of electronic warfare that degrade, neutralize, or destroy friendly combat capability.

Electronic Warfare (EW) - Any military action involving the use of electromagnetic and directed energy to control the electromagnetic spectrum or to attack the enemy. Also called EW. The three major subdivisions within electronic warfare are: electronic attack, electronic protection, and electronic warfare support.

Electronic Warfare Support (ES) - That division of electronic warfare involving actions tasked by, or under direct control of, an operational commander to search for, intercept, identify, and locate or localize sources of intentional and unintentional radiated electromagnetic energy for the purpose of immediate threat recognition, targeting, planning and conduct of future operations. Thus, electronic warfare support provides information required for decisions involving electronic warfare operations and other tactical actions such as threat avoidance, targeting, and homing. Also called ES, Electronic warfare support data can be used to produce signals intelligence, provide targeting for electronic or destructive attack, and produce measurement and signature intelligence.

Emergency Safe Altitude (ESA) - An altitude that provides a minimum of 1000 ft clearance above the highest obstacle that is within 25 nm either side of course line.

Escort (ESC) - Any flight designed to escort fixed wing or assault support (Helo, KC-130) aircraft against simulated air or surface threats.

Evaluate or Evaluation (EVAL) - Any flight designed to evaluate aircrew standardization that does not fit another category such as SARCK, HACCK, T2PCK, etc.

EVENT - See Syllabus Event.

Expeditionary Airfield (EAF) - Any flight designed to demonstrate aircrew ability to conduct day or night field arrestments and short field take-offs.

External (EXT) - Any flight in which a helicopter externally suspends and transports weights, cargo, vehicles, or aircraft.

Familiarization (FAM) - Any event in which aircrew/MACCS personnel gain basic knowledge of aircraft flight or system characteristics, limitations, emergency procedures, and crew position responsibilities.

Field Carrier Landing Practice (FCLP) - Any flight designed to prepare aircrews for operation in an EAF or carrier environment using an optical landing system and/or LSO/LSE control.

Flight Attendant (FA) Training - Any flight designed to demonstrate flight attendant procedures.

Formation (FORM) - Any flight designed to develop proficiency in basic section and/or division formation flying, day or night, and develop basic skills in tactical formations and maneuvering.

Forward Air Controller (Airborne) (FAC(A)) - A specially trained and qualified aviation officer who exercises control from the air of aircraft engaged in close air support of ground troops, as well as control of surface based supporting arms as required. The FAC(A) is normally an airborne extension of the Tactical Air Control Party.

Forward Base Operations (FBO) - Any F/W operations designed to train aircrews in ski jump, road and grass T/O and landings. FBO does not include shipboard operations.

Fragmentary Order Mission (FRAG) - Any flight in support of a designated unit for tasked airlift missions.

Helicopter Attack (HA) - Any flight designed to teach the fundamentals of and/or develop proficiency in any aspect of helicopter attack.

Helicopter Insertion/Extraction (HIE) - Any flight demonstrating the various insertion and extraction techniques employed by rotary-wing aircraft i.e. SPIE, FASTROPE, Rappelling.

Instructor Under Training (IUT) - Any event designed to train an individual as an instructor.

Instruments (INST) - Any flight involving the aircrew's ability to execute aircraft maneuvers under instrument conditions while complying with IFR procedures and using installed NAVAIDs.

Internal (INT) - Any flight in which a helicopter internally carries cargo, equipment, or weights.

Introduce - The instructor may demonstrate a procedure/maneuver to a student, or may coach the PUI/student through the procedure/maneuver without demonstration. The PUI/student performs the procedures/maneuver with coaching as necessary. The PUI/student is responsible for knowledge of the procedures.

Journeyman METOC Analyst (JMA) - A Meteorological and Oceanographic (METOC) Services Marine who has received basic and intermediate training in METOC sciences. The JMA is responsible for developing METOC forecasts. The forecasts are derived through application of atmospheric dynamics and physical theories and principles. The JMA continues to assess impacts to operations based upon METOC parameters. The JMA is one of the primary trainers and mentors of Apprentice METOC Analysts (AMA).

Large Force Exercise (LFE) - A flight involving numerous aircraft integrated into a tactical training scenario.

Low Altitude Tactics (LAT) - Any flight designed to develop proficiency in low altitude tactics. The term LAT shall apply to tactical fixed wing operations conducted during day or night VMC where the briefed intent is to conduct low altitude tactics below 500 ft AGL.

Master METOC Analyst (MMA) - A senior level Meteorological and Oceanographic (METOC) Services Marine who has received intermediate and advanced training in METOC sciences. The forecasts are derived through application of atmospheric dynamics and physical theories and principles. The MMA continues to assess impacts to operations based upon METOC parameters. The MMA is the primary trainer and mentor of AMAs and JMAs.

Master Scenario Events List (MSEL) - A master list of milestones and/or significant events in an exercise.

Medical Evacuation (MEDEVAC) - Any flight designed to demonstrate medical evacuation procedures.

METOC Analyst Instructor (MAI) - An intermediate or senior level Meteorological and Oceanographic (METOC) Services Marine who has received intermediate and advanced

training in METOC sciences. MAIs are qualified to provide instruction and training to AMA's and JMA's for T&R qualifications and designations. The MAI is the primary trainer and mentor of AMAs and JMAs for impact assessments.

Minimum Altitude - The lowest authorized altitude for a specific syllabus requirement.

Minimum Altitude Capable (MAC) - That altitude below comfort level at which the pilot is capable of performing terrain clearance tasks only.

Minimum Safe Altitude (MSA) - An altitude that provides a minimum of 500 feet clearance above the highest obstacle that is within 5 NM either side of course line or planned course deviation for that leg of the route. MSA shall be briefed for all LAT training.

Mission Skills - Mission Skills enable a unit to execute a specific MET. They are comprised of advanced unique event(s) (normally 3000 phase) that are focused on MET performance and draw upon the knowledge, aeronautical abilities, and situational awareness developed via Core Skill training.

Mountain Area Training (MAT) - Any flight in which the aircrew perform low/pattern work in mountains, valleys, or canyons.

NATOPS Jacket - The squadron NATOPS Officer maintains the aircrew NATOPS Flight Personnel Training/Qualification Jacket (NATOPS jacket) per OPNAVINST 3710.7.

Naval Aviator Production Process (NAPP) - A CNO-initiated program to focus on improving the process of producing first tour NAs and NFOs. See paragraph 801.

Navigation (NAV) - Any flight designated to develop aircrew ability to plan and execute navigation using aeronautical charts, visual checkpoints, RADAR, or electronic navigational systems.

Night Vision Device (NVD) - An electro-optical device used to provide a visible image using the electromagnetic energy available at night.

Night Vision Goggles (NVG) - Any day or night flight where helmet mounted, night imaging device flying techniques receive priority instruction.

Nuclear, Biological, and Chemical (NBC) - Any flight designed to train for operations in an NBC environment.

Observer (OBS) - An individual who has satisfied the aero medical and applicable T&R requirements and is designated in writing by the commanding officer (see definition of Flight Crew in OPNAVINST 3710.7).

Offensive Anti-Air Warfare Manager (OAAW Manager) - Aircrew responsible for coordinating the attack of surface to air threats systems in support of close air support and armed reconnaissance mission.

Operations (OPS) Training - Any syllabus event in MACCS T&R Manuals in which MACCS personnel develop proficiency in operating air control equipment in conjunction with external assets; i.e., aircraft, other agencies, etc.

Phase - A group of events delineating one of four T&R syllabus tiers (Core Skill Introduction, Core Skill Basic, Core Skill Advanced, and Core Plus).

Point Defense - Actions to protect a defended vital area against an air-to-surface or surface-to-surface threat.

Practice - The performance of a maneuver or procedure by the PUI/student that may have been previously introduced in order to attain a specified level of performance.

Prerequisite (PREREQ) - See Syllabus Event.

Proficiency - Proficiency is a measure of achievement of a specific skill. Refly factors establish the maximum time between demonstration of those particular skills. CRP is a measurement of "demonstrated proficiency." If an individual exceeds the refly factor for a particular event, the individual loses CRP for that particular event. To regain proficiency, an individual shall complete the delinquent event with a proficient crewman/flight lead. If an entire unit loses proficiency, unit instructors shall regain proficiency by completing an event with an instructor from a like unit. If this is not feasible, the instructor shall regain proficiency by completing the event with another instructor. If a unit has only one instructor and cannot complete the event with an instructor from another unit, he shall regain proficiency with another aircraft commander or as designated by his commanding officer.

Qualification (QUAL) - A qualification is a status assigned to personnel based on demonstration of proficiency in a specific skill. Specific criteria to achieve qualifications shall be delineated in individual T&R manuals. Upon successful completion of qualification criteria, commanding officers may issue an appropriate qualification letter. Individuals do not lose a qualification as a function of refly factor for individual events. Loss of proficiency (delinquent refly factor) for all associated qualification events (events with measurable refly factor; "*" refly factor events excluded) constitutes loss of that qualification. Re-qualification requires demonstration of proficiency. Specific re-qualification criteria shall be delineated in individual T&R manuals.

Rapid Ground Refueling (RGR) - Ground method of providing fuel to an aircraft utilizing another aircraft in an austere location.

Reconnaissance (RECON) - Any flight that includes the use of fixed-optical or electronic sensors.

Refly Factor - The maximum time between syllabus events requiring a specific skill wherein the unit can expect the average aircrew/MACCS personnel to maintain their acquired level of proficiency.

Requirements, Qualifications, Designations (RQD) - Normally tracking codes that facilitate management of unit requirements/qualifications/designations as well as aviation ground individual certifications.

Review - Demonstrated proficiency of a maneuver by the PUI/student.

Search and Rescue (SAR) - Any flight designed to demonstrate search and rescue procedures and techniques.

Simulator (SIM) Training - Any syllabus requirement within a T&R manual where personnel develop proficiency through simulated training requiring no asset support; i.e., aircraft, other agencies, etc. external to the parent unit.

Special/Specific Weapons Delivery (SWD) - Any flight designed to introduce or expose aircrews to the tactical employment of live weapons to include AIM-7, AIM-9, AIM-120, air-to-air guns, Hellfire, Stinger, TOW, JDAM, JSOW, Maverick, etc.

Stage - A group of similar T&R events (normally like Core Skill events) in numerical sequence within a phase.

Strike Coordination and Reconnaissance (SCAR) - Any tasks conducted airborne and facilitating the coordination of strike aircraft through a TAI in a DAS scenario by

providing targeting and threat information, and reconnaissance. Any OAS aircraft is capable of providing SCAR.

Syllabus Event - A flight or ground training evolution required by an individual syllabus.

a. Event Status. A 'Never Been Attempted' (NBA) status indicates an event that has never been successfully completed or updated via T/C stage completion (no proficiency date). A 'Incomplete' status means the individual was scheduled and attempted to complete the event but did not complete all event requirements. A 'proficient' status indicates that the number of days between the proficiency date and the reference date must be equal to or less than the refly interval. A 'delinquent' status indicates that the number of days between the proficiency date and the reference date (usually "today") exceeds the refly interval.

b. Delinquent Syllabus Event. An event is delinquent when the crew member exceeds the "refly factor" for that particular event. The individual may update the delinquent event by reflying that event with a current and proficient crewman/flight lead. Delinquent events are not updated through chaining.

c. Deferred Syllabus Event. An event that is delayed in the normal training progression cycle due to a lack of a logistic support or training assets.

d. Waived Syllabus Event. When an event is waived, the individual's proficiency date for that event shall be manually updated in M-SHARP and the individual remains proficient through the respective event refly interval.

e. Prerequisite. A prerequisite is a requirement that must be successfully completed prior to commencing another training requirement unless otherwise stated in a community T&R.

System Training (SYS) - Any syllabus event requiring MACCS personnel to gain knowledge in the hardware/equipment/system that they operate.

T&R Deviation - Divergence from accepted T&R policy. CG TECOM (ATB) is the approval authority for deviations from T&R policy.

Tactical Air Coordinator (Airborne) (TAC(A)) - A flight designed to control and/or coordinate supporting arms and aircraft in the same battle area; requires TAC(A) to maintain strict coordination procedures with controlling agencies and supported units.

Tactics (TAC) - A syllabus flight including the conduct of a tactical mission using a defined threat scenario.

Temporary Landing Zone (TLZ) - A natural, semi-prepared or prefabricated strip with surface, slope, dimensions, load-bearing capacity, and clearance from obstructions sufficient to allow suitably trained crews to land and take off safely in good weather conditions.

Terrain Flight (TERF) - Any helicopter event structured to occur below 200 ft AGL. Terrain flight employs terrain, vegetation, and man-made objects to degrade the enemy's ability to detect a helicopter. TERF includes the following basic flight techniques: low level, contour, and nap of the earth (NOE).

Threats - Air threat environments are categorized as follows:

a. Low Threat. An air threat environment that permits combat operations and support to continue without prohibitive interference. Associated tactics and techniques do not formally require extraordinary measures for preplanned or immediate support. Enhancements to target/objective engagement are effective communications, accurate target/objective identification, and re-attacks if applicable (limited only by aircraft time on-station and ordnance onboard).

b. Medium Threat. An air threat environment in which the specific aircraft performance and weapons systems capability allow acceptable exposure time to enemy air defenses. This air threat environment restricts the flexibility of tactics in the immediate target/objective area. It is an environment in which the enemy may have limited RADAR and/or electro-optical (EO) acquisition capability at medium range, but a fully integrated fire control system does not support the air defense system. Medium air threat environments normally allow medium altitude missions/attack deliveries with low probability of engagement by enemy air defenses.

c. High Threat. An air threat environment created by an opposing force possessing air defense combat power, including integrated fire control systems and electronic warfare (EW) capabilities that would seriously diminish the ability of friendly forces to provide necessary air support. This air threat environment might preclude missions such as immediate CAS, since the requirements for effective radio communications and coordination may not be possible. The high air threat environment may include, but is not limited to, command and control network; mobile and/or stationary surface-to-air missiles (SAMs); early warning radars; electronic warfare (EW); integrated (AAA) fire control systems; interceptor aircraft; and wartime reserve modes.

Unit Core Skill Proficiency (CSP) - See Core Skill Proficiency (CSP).

Very Important Person (VIP) Mission - Any flight designed to demonstrate procedures for carrying VIP passengers.

Visual Reconnaissance (VR) - Any VMC flight designed to locate targets, assess topography, or assess the enemy order of battle.

APPENDIX B

LIST OF ACRONYMS/CODE DESIGNATIONS

-A-	
AA	Air-to-Air
AAA	Anti-Aircraft Artillery
AADC	Area Air Defense Commander
AAH	Advanced Aircraft Handling
AAR	Air-to-Air Refueling
AAW	Anti-Air Warfare
AC	Aircrew
A/C	Aircraft
ACAD	Academics
ACE	Aviation Combat Element
ACM	Air Combat Maneuvering
ACMI	Air Combat Maneuvering Instructor
ACT	Air Coordination Training
ACQ	Acquisition
ACTI	Air Combat Tactics Instructor
ACWD	Advanced Conventional Weapons Delivery
AD	Aerial Delivery
ADC	Air Defense Coordinator
ADP	Aeronautical Designated Personnel
ADS	Aerial Delivery System
Adv	Advanced
AES	Airfield Emergency Services
AG	Air-to-Ground (Fixed wing)
AG	Aerial Gunnery (Rotary Wing)
AGT	Aviation Ground Training
AGO	Aerial Gunner/Observer
AGL	Above Ground Level
AHC	Attack Helicopter Commander
AI	Air Interdiction/Air Intercept
AIE	Alternate Insertion/Extraction
ALZ	Assault Landing Zone
AMA	Apprentice METOC Analyst
AMC	Air Mission Commander
AIE	Alternate Insertion/Extraction Techniques
AIM	Air Intercept Missile
AMTI	Airborne Moving Target Indicator
ANSQ	Advanced Night System Qualification
AOA	Angle of Attack
AOS	Airfield Operations Specialist
APAM	Antipersonnel Anti-mechanized
APH	Aerial Photography
APR	Aircrew Performance Record
AR	Armed Reconnaissance/Aerial Refueling
ARIP	Aerial Refueling Initial Point
ARBS	Angle Rate Bombing System
ARCP	Air Refueling Control Point
ARNAV	Aerial Refueling Navigation
A/S	Aircraft preferred, simulator optional
AS	Air-to-Surface
ASC(A)	Assault Support Coordinator (Airborne)
ASE	Aircraft Survivability Equipment/Assault Support Escort
ASE	Air Support Element
ASM	Air-to-Surface Missile
ASR	Authorized Strength Report
ASTO	Advanced Systems Tactics Ordnance
ASWD	Aerial Specific Weapons Delivery
ATB	Aviation Training Branch
ATC	Air Traffic Control
ATQ	Adversary Tactics Qualified

ATI	Adversary Tactics Instructor
ATM	Air Tasking Message
ATO	Air Tasking Order
ATRIMS	Aviation Training and Readiness Information Management System
ATSS	Aviation Training Support System
AV	Avionics
AVO	Advanced Visual Ordnance
AWACS	Airborne Warning and Control System
AWCAS	All Weather Close Air Support
AWI	All Weather Intercept
AWT	Artic Weather Training

-B-

B	Basic
BAM	Basic Aircraft Maneuvering
BARCAP	Barrier Combat Air Patrol
BARO	Barometric Bombing Mode
BCWD	Basic Conventional Weapons Delivery
BDA	Bomb Damage Assessment
BDU	Bomb Dummy Unit
BI	Battlefield Illumination
BIT	Built in Test
BIP	Basic Instructor Pilot
BMNT	Beginning Morning Nautical Twilight
BVR	Beyond Visual Range

-C-

C	Conversion
C2W	Command and Control Warfare
CAL	Confined Area Landing
CAP	Combat Air Patrol
CAS	Close Air Support
CASEVAC	Casualty Evacuation
CAT	Categories of Training
CATM	Captive Air Training Missile
CC	Crew Chief
CCIP	Continuously Computed Impact Point
CCRM	Core Competency Resource Model
CCUI	Crew Chief Under Instruction
CDS	Container Delivery System
CEP	Circular Error Probable
CERT	Certification
CK or X	Check Flight
CL	Comfort Level
CMMR	Core Model Minimum Requirements
CNO	Chief Naval Officer
COL	Combat Offload
comm-out/comm-in	No communication/with communication
COMNAV or CNI	Communication, Navigation, Identification
COMOPTEVFOR	Commander Operational Test and Evaluation Forces
COMSEC	Communications Security
CON	V/STOL Consolidation
CONLABS	Conventional Low Altitude Bombing System
COT	Cockpit Orientation Trainer
CP	Copilot
CPL	Cargo and Passenger Loading
CPT	Cockpit Procedures Trainer
CQ	Carrier Qualification
CRM	Crew Resource Management
CRRC	Combat Rubber Raiding Craft
CRT	Combat Rated Thrust
CS	Core Skill
CSC	Core Skill Complete

CSIX	Core Skill Introduction Check
CSP	Core Skill Proficiency
CST	Coordinated Strike Tactics/Cockpit Systems Training
CTC	Climb to Cope
CTO	Conventional Takeoff
CTOL	Conventional Takeoff/Landing
CV	Fixed Wing Aircraft Carrier
-D-	
D	Day Only
DACM	Defensive Air Combat Maneuvering (RW)
DACT	Dissimilar Air Combat Tactics
DAS	Deep Air Support
DASC	Direct Air Support Center
DCA	Defensive Counter Air
DACMI	Defensive Air Combat Maneuvering Instructor
DCM	Defensive Combat Maneuvers
DCMI	Defensive Combat Maneuvers Instructor
DECM	Defensive Electronic Countermeasures
DEFTAC	Defensive Tactics
DEFTACI	Defensive Tactics Instructor
DES	Desert Operations
DESG	Designation
DIFDEN	Duty in a Flying Status Flight Activity Denied
DIFOP	Duty in a Flying Status Involving Operational or Training Flights
DIV LDR	Division Leader
DL	Data Link
DLUT	Division Lead under Training
DM	Defensive Measures
DMI	Defensive Measures Instructor
DMT	Dual Mode Tracker
DR	Dead Reckoning
DWEST	Deep Water Environmental Survival Training
-E-	
E	Evaluated
EA	Electronic Attack
EAF	Expeditionary Airfield
ECMO	Electronic Countermeasures Officer
ECQ	Field Expeditionary/Carrier Landing Qualification
EENT	End of Evening Nautical Twilight
EMCON	Emission Control
EO	Electro-optical
EP	Electronic Protection/Emergency Procedures
ER/DL	Extended Range/Data Link
ERO	Engine Running On/Off Load
ES	Electronic Support
ESA	Emergency Safe Altitude
ESC	Escort
ESIM	Emergency Simulator
EVM	Evasive Maneuvering
EW	Electronic Warfare
EW/C	Early Warning and Control
EWCAS	Electronic Warfare (supported) Close Air Support
EWCT	Early Warning Control Team
EWSIM	Electronic Warfare Simulator
EWT	Extreme Weather Training
EVAL	Evaluate or Evaluation
EXT	External Cargo Operations
EXTWT	External Weights
-F-	
FA	Flight Attendant

FAC	Forward Air Controller
FAC(A)	Forward Air Controller (Airborne)
FAC(A)I	Forward Air Controller (Airborne) Instructor
FAE	Fuel Air Explosive
FAI	Flight Attendant Instructor/Familiarization and Instrument Training
FAM	Familiarization
FAUI	Flight Attendant Under Instruction
FBO	Forward Base Operations
FCF	Functional Check Flight
FCLP	Field Carrier Landing Practice
FCP	Functional Check Pilot
FE	Flight Engineer
FEI	Flight Engineer Instructor
FF	Fire Fighting
FI	Fighter Intercept
FIREX	Firing Exercise
FL	Flight Leadership
FLIP	Flight Information Publication
FLIR	Forward Looking Infrared
FM	Flight Mechanic
FORM	Formation
FRAG	Fragment or Fragmentary
FRS	Fleet Replacement Squadron
FS	Front Seat
FSI	Forecast Support Qualified
FSQ	Forecast Support Qualified
FW (F/W)	Fixed Wing
FWF	Fixed Wing Fragger
FXP	Fleet Exercise Procedure

-G-

GCE	Ground Combat Element/Ground Convoy Escort
GCI	Ground Controlled Intercept
GPS	Global Positioning System
GTR	Ground Threat Reaction

-H-

H2P	Helicopter Second Pilot
HA	Helicopter Attack
HAC	Helicopter Aircraft Commander
HAHO	High Altitude High Opening
HALO	High Altitude Low Opening
HAR	Helicopter Aerial Refueling
HARM	High Speed Anti-radiation Missile
HCPT/HELO	Helicopter
HE	High Explosive or Heavy Equipment
HIE	Helicopter Insertion/Extraction
HIGE	Hover In Ground Effect
HILOFT	High Angle Loft Weapons Delivery
HLL	High Light Level
HOGE	Hover Out of Ground Effect
HOTAS	Hands on Throttle and Stick
HUD	Heads Up Display

-I-

I	Instructor
ICLS	Instrument Carrier Landing System
ICO	Interface Coordination Officer (TACC)
ICP	Instrument Check Pilot
ICS	Intercommunications
IDSG	Instructor Designation
IFMT	In-flight Medical Technician
IFR	Instrument Flight Rules

ILM	Instructor Loadmaster
ILS	Instrument Landing System
IMC	Instrument Meteorological Conditions
IMN	Indicated MACH Number
IN	Instructor NFO
INS	Inertial Navigation System
INST	Instruments
INT	Internal or Intercepts
INTWT	Internal Weights
INUT	Instructor NFO Under Training
IP	Instructor Pilot
IPR	Individual Performance Record
IR	Infrared
IRCM	Infrared Countermeasures
ISD	Instructional Systems Development
ITO	Instrument Takeoff
IUT	Instructor Under Training
-J-	
JATO	Jet Assisted Takeoff
JDAM	Joint Direct Attack Munition
JINTACS	Joint Interoperability Tactical Air Command System
JMA	Journeyman METOC Analyst Qualified
JMEMS	Joint Munitions Effectiveness Manual Series
JSOW	Joint Standoff Weapon
-K-	
KIO	Knock It Off
-L-	
LAAD	Low Altitude Air Defense
LAT	Low Altitude Tactics
LATI	Low Altitude Tactics Instructor
LFE	Large Force Exercise
LGB	Laser Guided Bomb
LHA	Landing Helicopter Amphibious Ship (Helicopter/VSTOL Carrier)
LHD	Landing Helicopter Ship (Helicopter/VSTOL Carrier)
LLL	Low Light Level
LM	Loadmaster
LMUI	Loadmaster Under Instruction
LPH	Landing Platform Helicopter Ship (Helicopter/VSTOL Carrier)
LRAR	Long Range Aerial Refueling
LRNAV	Long Range Navigation
LSE	Landing Signal Enlisted
LSO	Landing Signal Officer
LSS	Landing Site Supervisor
LST	Laser Spot Tracker
LUX	A measure of luminance
-M-	
MAC	Minimum Altitude Capable
MACCS	Marine Air Command and Control System
MAG	Magnetic Degrees
MAI	METOC Analyst Instructor
MAT	Mountain Area Training
MC	Mission Commander
MCAD	Marine Corps Administrative Detachment
MCCRES	Marine Corps Combat Readiness Evaluation System
MCUT	Mission Commander Under Training
MECH	Target Area Tactics
MEDEVAC	Medical Evacuation
MET	Mission Essential Tasks
METOC	Meteorological Oceanographic

MIN	Minimum
MINCOM	Minimum Communication
MITAC	Map Interpretation and Terrain Analysis Course
MMA	Master METOC Analyst
MMD	Moving Map Display
MOCA	Minimum Obstruction Clearance Altitude
MPD	Multipurpose Display
MPR	MACCS Performance Record
MPS	Mission Performance Standards
MR	Modified Referesher
MRE	Mean Range Error
MRP	Mission Readiness Percentage
M-SHARP	Marine Corps Sierra-Hotel Aviation Readiness Program
MSA	Minimum Safe Altitude
MSEL	Master Scenario Events List
MSL	Mean Sea Level
MTR	Military Training Route

-N-

N	Night Only
NAC	Naval Avionics Center
NAI	Named Area of Interest
NAPP	Naval Aviator Production Process
NATOPS	Naval Air Training and Operating Procedures Standardization
NAV	Navigation or Navigator
NAVI	Navigator Instructor
NAVFLIRS	Naval Flight Record Subsystem
NBA	Never Been Attempted
NBC	Nuclear, Biological, and Chemical
NFWS	Navy Fighter Weapons School
NFO	Naval Flight Officer
NI	NATOPS Instructor
NM	Nautical Mile
NOE	Nap of the Earth
NS	Night Systems
NSAR	Night Search and Rescue
NSFS	Naval Surface Fire Support
NSI	Night Systems Instructor
NSFI	Night Systems FAM Instructor
NSQ	Night Systems Qualified
NSSI	Night Systems SAR Instructor
NTISR	Non-Traditional Intelligence, Surveillance and Reconnaissance
NVD	Night Vision Device
NVG	Night Vision Goggles
NVGCQ	Night Vision Goggle Carrier Qualification
NVGFCLP	Night Vision Goggle Field Carrier Landing Practice

-O-

O/W	Over Water
OAAW	Offensive Anti-Air Warfare
OAP	Offset-Aimpoint
OAS	Offensive Air Support
OBS	Observations
OCA	Offensive Counter Air
OCE	Officer Conducting Exercise
OFT	Operational Flight Trainer
OPS	Operations
OPSEC	Operational Security

-P-

P	Pilot
PA	Precautionary Approach
PMCF	Post Maintenance Check Flight

PNAV	Proficiency Navigation
PNB	Power Nozzle Braking
POI	Program of Instruction
PQM	Pilot Qualified In-model
PREREQ	Prerequisite
PTT	Partial Task Trainer
PUI	Pilot Under Instruction
PUP	Pull Up Point
-Q-	
QUAL	Qualification
-R-	
R	Refresher Aircrew
RA	Rescue Aircrew
RAI	Rescue Aircrew Instructor
RAUI	Rescue Aircrew Under Instruction
RAC	Replacement Aircrew or Refueling Area Commander or Rescue Aircrew
RADC	Regional Air Defense Commander
RADCON	Radiation Control
RADNAV	RADAR Navigation
RAP	Rappel Operations
RC	Rendezvous Controller
RCB	RADAR Controlled Bombing
RE	RAC Equivalent
RECON	Reconnaissance
REC	Reconnaissance/Requirements
REV	Review
RGR	Rapid Ground Refueling
RIO	RADAR Intercept Officer
RNO	Radio Net Operator
ROC	Rules of Conduct
ROE	Rules of Engagement
RPM	Revolutions Per Minute
RQD	Requirements, Qualifications, Designations
RS	Rear Seat
RTI	RADAR Target Identification
RTO	Range Training Officer
RVL	Rolling Vertical Landing
RVTO	Rolling Vertical Takeoff
RVTOL	Rolling Vertical Takeoff/Landing
RW	Rotary Wing
RWDACM	Rotary Wing Defensive Air Combat Maneuvering
RWF	Rotary Wing Fragger (TACC)
RWS	Range While Search
-S-	
S	Simulator
SA	Surface Attack
S/A	Simulator preferred, aircraft optional
SAC	Supporting Arms Coordination/Senior Air Coordinator
SAM	Surface to Air Missile
SAR	Search and Rescue
SCAR	Strike Coordination and Reconnaissance
SEAD	Suppression of Enemy Air Defenses
SERE	Survival, Evasion, Resistance, Escape
SI	Strike Intercept
SIM	Simulate or Simulator
SID	Standard Instrument Departure
SLR	Side Looking RADAR
SLT	Simulated Laser Target
SLUT	Section Leader Under Training
SME	Subject Matter Expert

SO	Surveillance Operator
SOP	Standing Operating Procedure
SOTC	Specific Operations Tracking Codes
SPIE	Special Purpose Insertion Extraction
SSSC	Surface, Subsurface, Surveillance, and Control
SSWD	Surface Specific Weapons Delivery
STF	Special Training Flights
STANX	Standardization Check
STOL	Short Takeoff/Landing
SV	Simulator Visual
SWD	Special/Specific Weapons Delivery
SWD	Senior Weapons Director (TAOC)
SYSNAV	System Navigation
SYSTAC	System Tactics
-T-	
T	Transition
T2P	Transport Second Pilot or Tiltrotor Second Pilot
T3P	Transport Third Pilot
TAI	Target Area of Interest
TAC	Tactics / Tiltrotor Aircraft Commander / Transport Aircraft Commander
TAC(A)	Tactical Air Coordinator (Airborne)
TAC(A)I	Tactical Air Coordinator (Airborne) Instructor
TACC	Tactical Air Command Center
TACFORM	Tactical Formation
TACNAV	Tactical Navigation
TACP	Tactical Air Control Party
TACTS	Tactical Aircrew Combat Training System
TAOC	Tactical Air Operations Center
TAR	Tactical Aerial Reconnaissance
TARCAP	Target Combat Air Patrol
TC	Terrain Clearance
TCA	Track Crossing Angle
TCT	Threat Counter-tactics
TCWD	Tactical Conventional Weapons Delivery
TDL	Tactical Data Information Link
TEMP	Temperature
TERF	Terrain Flight
TFS	Task Force Support
THRX	Threat Reaction
TLZ	Temporary Landing Zone
T/M/S	Type Model Series
T/O	Table of Organization
TOT	Time on Target
TPC	Transport Plane Commander
TR	Training Rules
TRK	Tracking code
TRXN	Threat Reaction
TTT	Time to Target
TWS	Track While Scan
-U-	
UAS	Unmanned Aerial Systems (formerly UAV)
UFC	Up-Front Control
UHC	Utility Helicopter Commander
UTIL	Utility
-V-	
VAD	Vital Area Defense
VFR	Visual Flight Rules
VID	Visual Identification
VIP	Very Important Person(s)
VL	Vertical Landing

VMC	Visual Meteorological Conditions
VNSL	Variable Nozzle Slow Landing
VR	Visual Reconnaissance
VS	Velocity Search
VSTOL	Vertical Short Takeoff/Landing
VTO	Vertical Takeoff
VTR	Video Tape Recorder
-W-	
W	Waived
WAS	War-at-Sea
WEO	Weapons Employment Officer
WST	Weapons System Trainer
WTACI	Weapons and Tactics Aircrew Instructor
WTI	Weapons and Tactics Instructor
WTO	Weapons and Tactics Officer
WTR	Water Landings
WTT	Weapons Tactics Trainer
-X-	
X	Check Flight (See also CK)
-Y-	
-Z-	

APPENDIX C

MISSION AND INSTRUCTOR DESIGNATIONS AND QUALIFICATIONS

Designations Qualifications are grouped as follows:

1. FLIGHT LEADERSHIP DESIGNATIONS
2. LOW ALTITUDE FLIGHT QUALIFICATIONS AND DESIGNATIONS
3. NIGHT OPERATIONS QUALIFICATIONS AND DESIGNATIONS
4. FW ACM QUALIFICATIONS AND DESIGNATIONS
5. RW DM/DACM QUALIFICATIONS AND DESIGNATIONS
6. TILTROTOR DCM QUALIFICATIONS AND DESIGNATIONS
7. ENLISTED FW AIRCREW DESIGNATIONS
8. WEAPONS AND TACTICS INSTRUCTORS
9. RW AERIAL GUNNERY (AG)
10. MARINE AIR COMMAND AND CONTROL CERTIFICATIONS, QUALIFICATIONS AND DESIGNATIONS

1. FLIGHT LEADERSHIP DESIGNATIONS

(a) Section Leader. A designated Naval Aviator able to lead and direct a flight of two aircraft.

(b) Division Leader. A designated Naval Aviator able to lead and direct a flight of three or more aircraft.

(c) Flight Leader (RW only). A designated Naval Aviator able to lead and direct a flight of five or more aircraft.

(d) Mission Commander/AMC. A designated Naval Aviator or Naval Flight Officer able to lead and direct a mission. The Mission Commander is responsible for all phases of a mission except for those aspects of safety of flight directly related to the physical control of an aircraft and fall within the prerogatives of the pilot in command.

(e) Strategic Refueling Area Commander (RAC) (KC-130 only). A Strategic RAC is a qualified Naval Aviator able to plan and lead a long range ferry of tactical aircraft involving aerial refueling from KC-130s. The Strategic RAC is responsible for all refueling phases of the mission to include airspace coordination, flight planning, tanker and receiver fuel planning, path finding and emergency procedures.

(f) Tactical Refueling Area Commander (KC-130 only). A Tactical RAC is a qualified section or division leader able to plan and lead an aerial refueling mission of two or more KC-130s on a static orbit tanker track with multiple receiver aircraft.

2. LOW ALTITUDE FLIGHT QUALIFICATIONS AND DESIGNATIONS

a. FW Qualifications and Designations

(1) Low Altitude Tactics (LAT) Qualified. An aircrew certified as having completed the LAT qualification syllabus specified in the appropriate T&R syllabus.

(2) Low Altitude Tactics Instructor (LATI). An aircrew certified by a squadron WTI or MAWTS-1 instructor as having completed the MAWTS-1 Low Altitude Tactics Instructor Course. MAWTS-1 publishes the requirements and POI for LATI in the MAWTS-1 Course Catalog.

b. RW Qualifications and Designations

(1) Terrain Flight (TERF) Qualified. An aircrew certified as having completed required TERF events in the appropriate T&R syllabus.

(2) Terrain Flight Instructor (TERFI). A NA or CC certified by a TERFI as having completed the Terrain Flight Instructor Course. The requirements and POI for TERFI are contained in the appropriate T&R syllabus or the MAWTS-1 Course Catalog.

c. Tiltrotor Qualifications and Designations

(1) Low Altitude Training (LAT) Qualified. A pilot or aircrew certified as having completed the required LAT events in the MV-22 T&R syllabus.

(2) Low Altitude Training Instructor (LATI). A NA or CC certified by a MAWTS-1 designated LATI as having completed the LATI syllabus per the MAWTS-1 Course Catalog.

3. NIGHT OPERATIONS QUALIFICATIONS AND DESIGNATIONS

a. FW Qualifications and Designations

(1) Night Systems Qualified (NSQ). Aircrew certified as having completed the NSQ syllabus per the appropriate T&R syllabus. The aircrew is qualified to operate NS during training operations.

(2) Night Systems Qualified High/Low Altitude NSQ HI/Low). The following qualifications apply to FW aircraft that have NSQ HI and NSQ Low qualifications delineated in T&R syllabi.

(a) Night Systems Qualified High Altitude (NSQ HI). Aircrew certified as having completed the T&R prescribed NSQ HI syllabus under the supervision of a squadron NSI. The aircrew is qualified to operate NS during non-LAT operations.

(b) Night Systems Qualified Low Altitude (NSQ Low). Aircrew certified as having completed the T&R prescribed NSQ Low syllabus prescribed for NS LAT training under the supervision of a squadron NSI flight lead. The aircrew is qualified to operate NS during LAT operations.

(3) Night Systems Instructor (NSI). Aircrew certified by a MAWTS-1 instructor as having completed the NSI Course per the MAWTS-1 Course Catalog.

(4) Night Systems Low Altitude Tactics Instructor (NSLATI). Aircrew certified by a MAWTS-1 instructor as having completed the NSLATI Course per the MAWTS-1 Course Catalog. The NSLATI is qualified to instruct NS LAT training operations.

(5) Night Systems Familiarization Instructor (NSFI). Aircrew certified by the FRS as having completed the NSFI Course.

b. RW Qualifications and Designations

(1) Night Systems Qualified (NSQ)

(a) High Light Level (HLL). Aircrew certified as having completed the events for NSQ HLL per the appropriate T&R syllabus. The aircrew is qualified to transport troops in HLL.

(b) Low Light Level (LLL). Aircrew certified as having completed the required events for NSQ per the appropriate T&R syllabus. The aircrew is qualified to transport troops in LLL or HLL.

(2) Night Systems Familiarization Instructor (NSFI). A NA or CC certified by an NSI as having completed the NSFI Course in the MAWTS-1 Course Catalog. An NSFI is a FRS instructor only.

(3) Night Systems SAR Instructor (NSSI). A NA or CC certified by an NSI as having completed the NSSI Course in the MAWTS-1 Course Catalog. Previously certified NSIs can be designated an NSSI at the discretion of the squadron commanding officer.

(4) Night Systems Instructor (NSI). A NA or CC certified by a MAWTS-1 instructor as having completed the NSI Course in the MAWTS-1 Course Catalog. The NSI is qualified to instruct in all phases of RW night system training.

c. Tiltrotor Qualifications and Designations

(1) Night Systems Qualified (NSQ)

(a) High Light Level (HLL). Aircrew certified as having completed the required events for NSQ HLL per the appropriate T&R syllabus. The crewmember is embarked troops HLL qualified.

(b) Low Light Level (LLL). Aircrew certified as having completed the required events for NSQ LLL per the appropriate T&R syllabus. The crewmember is embarked troops HLL and LLL qualified.

(2) Night Systems Instructor (NSI). A NA or CC certified by a MAWTS-1 instructor as having completed the NSI Course in the MAWTS-1 Course Catalog. The NSI is qualified to instruct in all phases of tiltrotor night systems training.

4. FW ACM QUALIFICATIONS AND DESIGNATIONS

a. ACM/DEFTAC Qualified. A NA/NFO certified as having completed the appropriate air-to-air events within the appropriate T&R syllabus. The issued qualification letter shall differentiate whether the individual is ACM qualified or DEFTAC qualified.

b. ACM Flight Leader. A NA who is ACM or DEFTAC qualified and is designated to brief, lead, and debrief an ACM/DEFTAC mission.

c. Air Combat Tactics Instructor (ACTI). A NA/NFO certified by a MAWTS-1 instructor as having completed the MAWTS-1 ACTI Course.

d. Defensive Tactics Instructor (DEFTACI). A NA/NFO certified by a MAWTS-1 instructor as completing the MAWTS-1 DEFTACI Course.

e. Adversary Tactics Instructor (ATI). A NA or USAF exchange officer authorized or assigned to fly with VMFT-401, certified by a squadron ATI as having completed the ATI Course. The designation is applicable to VMFAT-401 only.

5. RW DM/DACM QUALIFICATIONS AND DESIGNATIONS

a. Defensive Measures (DM) Qualified. Aircrew certified as having completed the DM syllabus within the appropriate T&R syllabus.

b. Defensive Measures Instructor (DMI). A NA or CC certified by a MAWTS-1 instructor as having completed the MAWTS-1 DMI Course.

c. Defensive Air Combat Maneuvering (DACM) Qualified. Aircrew certified as having completed the DACM syllabus within the appropriate T&R syllabus.

d. Defensive Air Combat Maneuvering Instructor (DACMI). A NA or CC certified by a MAWTS-1 instructor as having completed the MAWTS-1 RW DACMI course.

6. TILTROTOR DCM QUALIFICATIONS AND DESIGNATIONS

a. Defensive Combat Maneuvers (DCM) Qualified. Aircrew certified as having completed the DCM syllabus within the appropriate T&R syllabus.

b. Defensive Combat Maneuvers Instructor (DCMI). A NA or CC certified by a MAWTS-1 Instructor as having completed the MAWTS-1 DCMI Course.

7. ENLISTED FW AIRCREW DESIGNATIONS

a. Enlisted Night Systems Instructor. A flight engineer, navigator or loadmaster certified by a MAWTS-1 instructor as having completed the MAWTS-1 Night Systems Instructor course.

b. Enlisted Instructor. A flight engineer, navigator or loadmaster certified by the squadron NATOPS officer as having completed the appropriate T&R Instructor Syllabus.

8. WEAPONS AND TACTICS INSTRUCTORS. A Weapons and Tactics Instructor (WTI) is an instructor certified by a MAWTS-1 instructor as having completed the WTI course. There are several types of WTIs:

a. Weapons and Tactics Instructor (WTI) - Naval Aviators (NA), Naval Flight Officers (NFO) and Crew Chiefs (CC).

b. Weapons and Tactics Instructor (WTI) - Air Control for Marine air command and control personnel.

c. Weapons and Tactics Instructor (WTI) - A METOC WTI is a METOC Officer who is a graduate of the Marine Aviation Weapons and Tactics Squadron One (MAWTS-1) WTI course. These officers have advanced skills and knowledge to provide instruction in METOC operations and Tactics Techniques and Procedures (TTPs). They are METOC SMEs responsible for managing a METOC unit's Weapons and Tactics Training Program (WTTP) and ACE planners specializing in METOC operations.

9. RW AERIAL GUNNERY (AG)

a. AG Qualified. Aircrew certified as having completed the required AG events in the appropriate T&R syllabus.

b. AG Instructor (AGI). A crew chief or aerial gunner certified by a WTI Crew Chief as having completed the AG Instructor Course.

c. Tail Gunnery Instructor (TGI). A crew chief certified by a MAWTS-1 instructor a having completed TGI POI per the MAWTS-1 course catalog.

10. MARINE AIR COMMAND AND CONTROL CERTIFICATIONS, QUALIFICATIONS AND DESIGNATIONS. For detailed listings and information concerning aviation ground certifications, qualifications and designations refer to the respective community T&R manual.

Appendix D

Marine Aviation Mission Essential Task-Based Core Model Training Report

(T-Level Calculation)

EXECUTIVE SUMMARY

1. Purpose. To implement CG TECOM's solution to replace the current aviation unit Status of Resources and Training System (SORTS) report procedures (T-Level only) with a Mission Essential Task-Based method that leverages Marine Aviation's Core Competency Model.

2. Background. The 2000 Secretary of Defense Annual Report to the President and Congress stated, "In response to legislation of DoD internal review, the Department undertook an extensive and collaborative process to enhance the current readiness reporting system." The DoD established the Defense Readiness Reporting System (DRRS) to make readiness reporting more objective, timely, and accurate. The DRRS provides a "capabilities-based, adaptive, near real-time readiness reporting system." It requires a demonstrable link between Mission Essential Tasks (METs) and readiness reporting. Additionally, the Marine Aviation Campaign Plan 2002 directed that aviation readiness reporting transition from a focus on individual readiness to a unit readiness construct. The TECOM (ATB) Readiness Reporting Proposal provides a capabilities-based readiness assessment structure and process that more clearly demonstrates the link between the Mission Essential Tasks (METs) and aviation unit readiness reporting.

3. The TECOM (ATB) proposal provides a method that reports unit training readiness using, as its foundation, Marine Aviation's Training and Readiness (T&R) Manual Core Model. The proposed method reports unit T-Level capability in the context of two distinct but related readiness metrics. These metrics include Core Skill Proficiency (CSP) and Combat Leadership. Both of these metrics are evaluated based upon service-directed standards set forth within the CG MCCDC's MCO P3500.14 series (T&R Program Manual and aircraft community T&Rs.

4. The effort over the last few years on the core model has created an opportunity to improve unit training level measurement and reporting. Using the core model as the foundation, the proposed readiness reporting concept is sufficiently mature for software implementation.

Marine Aviation
MET-Based Core Model Training Report (CMTR) (T-Level)

1. Structure. The Core Model Training Report (CMTR) (T-Level Model) is laid out in the same general format for each Type/Model/Series (T/M/S) aircraft or aviation ground community. Any exceptions will be clarified for each T/M/S in the appropriate community's CMTR. *For the purpose of this appendix, the term T/M/S includes weapons/platforms for the aviaiton ground communities.* There are 2 major and 5 minor sections within each T/M/S Readiness Reporting Model.

a. The 2 major sections are Core Skill Proficiency (CSP) and Combat Leadership

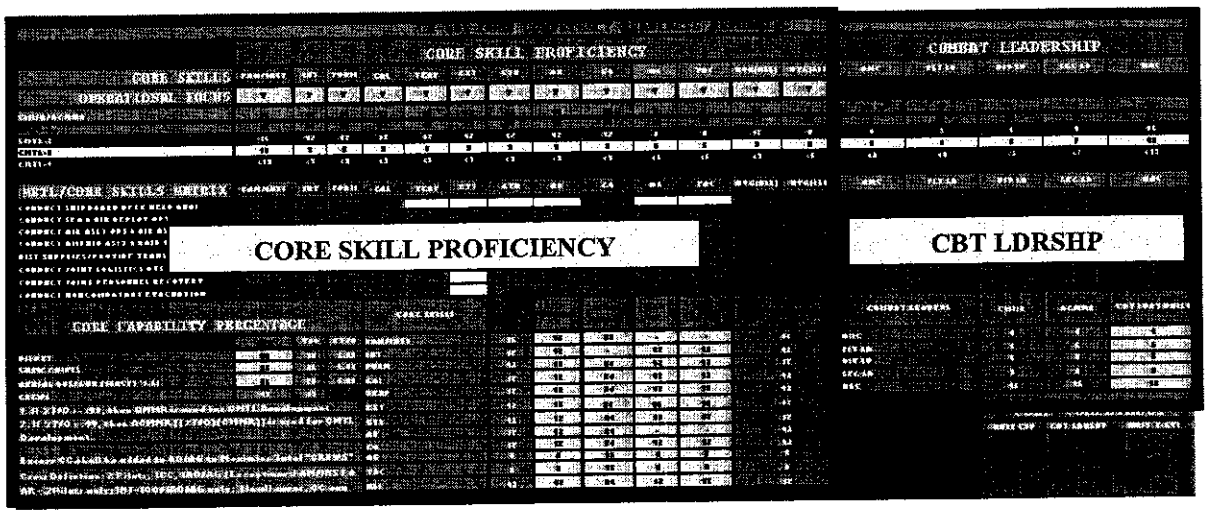


Figure 1. Readiness Reporting Major Sections

b. Within the 2 major section are 5 minor sections:
- Core Model Training Level (CMTL) Threshold Development
- METLs/Core Skills Matrix,
- Core Capability,
- Core Model Minimum Requirement (CMMR) encompassing Individual and Crew Core Skills Proficiency as well as Combat Leadership, and
- Core Competency Results (T-Level) (Figure 2).

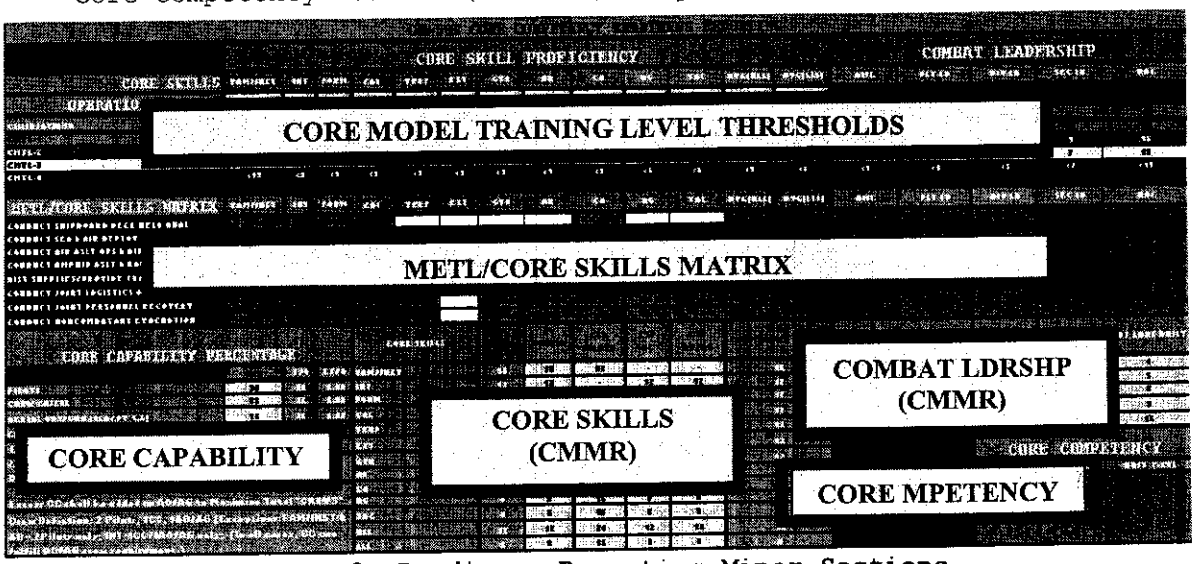


Figure 2. Readiness Reporting Minor Sections

c. These minor sections are directly related to the USMC Aviation Training and Readiness (T&R) Program and are governed by NAVMC 3500.14 and T/M/S specific T&R manuals.

2. Mission Essential Task List (METL)/Core Skills Matrix

a. The unit METL is a standardized list of tasks a unit must be able to accomplish during combat or contingency operations. Core Skills are specific mission related task areas that support a community's METL.

b. The unit METL/Core Skills Matrix is a standardized table that displays the relationship between a unit's METL and the Core Skills that support the METL (Figure 3). Colored boxes within the matrix indicate a supporting relationship between the Core Skill and its corresponding Mission Essential Task (MET).

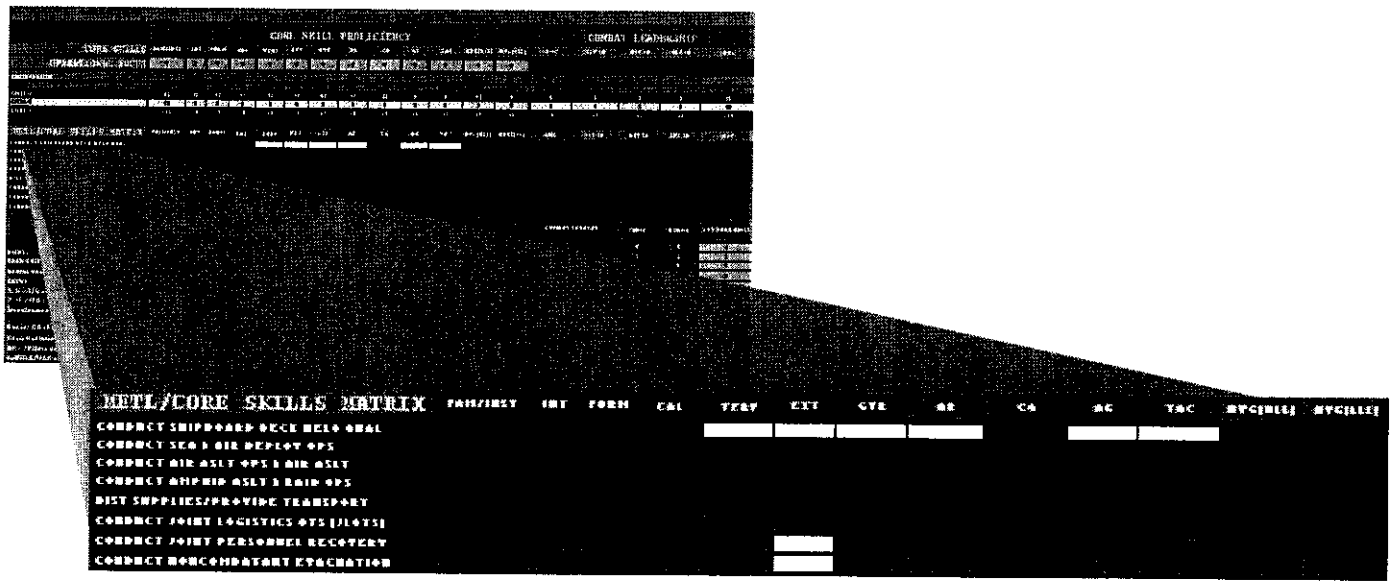


Figure 3. METL/CORE SKILLS Matrix

c. The color scheme at MET-Core Skill intersection varies between Blue, Green, Yellow, and Red. Where no color exists (White), no supporting relationship exists between the Core Skill and the corresponding MET. The color codes denote CMTL as defined in Figure 4. "CMMR Baselines" will be discussed later.

CMTL-2	>=70% of the CMMR Baseline
CMTL-3	>=55% of the CMMR Baseline

Figure 4. Core Skills Matrix Color Codes

3. Core Capability

a. Unit Core Capability is a standardized measure of performance that a MAGTF commander should expect during sustained contingency or combat operations. Combat squadrons define core capability in terms of a daily, sustained sortie rate in support of the aircraft community METL. For the aviation ground communities is may include daily operational coverage or support. The core capability for each T/M/S

squadron and agency is described in individual T&R manuals. Using an excerpt from the CH-53E Core Capability Statement as an example:

(1) A core capable CH-53 unit is able to sustain (X amount of sorties) on a daily basis during contingency or combat operations.

(2) The sortie rates are based on 1.8 hour average sortie duration and assumes:

- Greater than 70 percent FMC aircraft.
- Greater than 90 percent On Hand (O/H) crews (assigned).

(3) If unit FMC aircraft is less than 70 percent or **O/H crews are less than 90% of T/O crews, then Unit Core Capability will be degraded by a like percentage.** A core capable unit is able to accomplish all tasks designated in the unit METL from a main base, expeditionary base, or amphibious platform.

b. The Core Capability section of the CMTR is composed of several items including crew/personnel manning (O/H or "assigned"), crew/personnel manning (T/O or "authorized"), the Total Crews/personnel available, and the Total Crew/personnel O/H to T/O percentage (Figure 5).

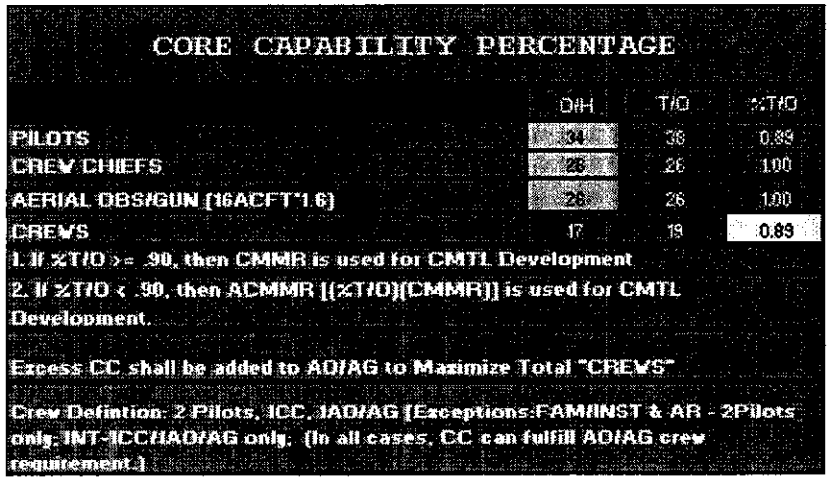


Figure 5. Core Capability Percentage

4. Crew Definition

a. The total number of O/H crews refers to both the number of crewmembers that are assigned to a particular occupational specialty (pilot, crew chief) or skill designator (Aerial Observer/Aerial Gunner [AO/AG], etc.) and to the total number of whole crews authorized for the unit or T/O. The T/O number of crews is derived from the published wartime manning level that is seldom seen by Marine aviation units during peacetime operations.

b. Each T/M/S community (via the T&R manual) is required to define a "standard crew," by Core Skill, in order to support unit readiness reporting metrics. For example, a single-seat platform has a crew defined as one pilot. However, the crew definition can vary both by crew position and by Core Skill for a given community.

c. For example, in a multi-seat fixed wing community (EA-6B), the definition of a standard crew is based upon both the ratio of aircrew "types" in the cockpit and on particular Core Skills. One CSP pilot and 1 CSP Electronic Countermeasures Officer (ECMO) define the "standard crew" in the Core Skills of FAM/NAV, FORM, and AR (1:1 ratio between pilots and ECMO). Figure 6 demonstrates that in all other Core Skills, 1 CSP pilot and 3 CSP ECMOs (1:3) define the "crew."

EA-6B Unit CSP Requirements			
CORE SKILL	PILOT	ECMO	CREWS
FAM/NAV	5	5	5
FORM	5	5	5
NS	5	15	5
AR	5	5	5
ES	5	15	5
EA	5	15	5
TRXN	5	15	5
OAS	5	15	5
TFS	5	15	5
DEFTAC	3	9	3

Figure 6. Crew Definition for Multi-Seat Fixed Wing Community

d. In the rotary wing community, all platform crew definitions are considered multi-seat and combinations of aircrew "types" define a "crew." In Figure 7 below, the CH-53E crew is defined as 2 CSP pilots, 1 CSP crew chief, and 1 CSP AO/AG for all Core Skills except AR which requires only 2 CSP pilots (other crew positions would be filled but there is no requirement for Core Skill proficiency at those positions).

CH-53E CMMR (Unit CSP Requirements) Squadron				
CORE SKILL *CORE PLUS	Pilots	Crew Chiefs	AO/AGs	Crews
FAM/INST	32	-	-	16
INT	-	12	12	12
FORM	24	12	12	12
CAL	24	12	12	12
TERF	24	12	12	12
EXT	24	12	12	12
GTR	24	12	12	12
AR	12	-	-	6
CQ	24	12	12	12
AG	16	8**		8
TAC	16	8	8	8
HLL	24	12	12	12
LLL	16	8	8	8

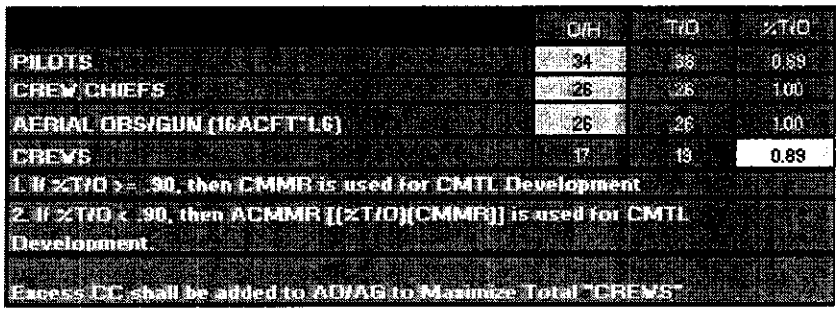
Figure 7. Crew Definition for Rotary Wing Community (CH-53E)

5. Crews Assigned

a. The number of CSP crews is calculated within the CMTR and is based upon crew data. The maximum number of assigned crews is dependent upon the crew

definition. For example, if a crew definition demands 2 CSP pilots, the total "Crews" may be equivalent to the total number of O/H pilots divided by 2. However, if the total number of crew chiefs available were less than the number of pilot crews, then the crew chief number available would drive the number of total "Crews" down.

b. In Figure 8, the number of total "Crews" (Rotary Wing Unit) is limited by pilot O/H manning level (34/2=17).



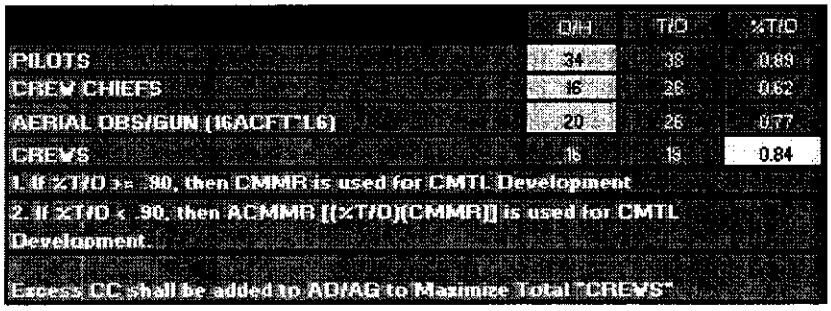
	O/H	T/O	%T/O
PILOTS	34	38	0.89
CREW CHIEFS	26	26	1.00
AERIAL OBS/GUN (16ACFT*1.6)	26	26	1.00
CREWS	17	19	0.89

1. If %T/O >= .90, then CMMR is used for CMTL Development
2. If %T/O < .90, then ACMMR [(%T/O)(CMMR)] is used for CMTL Development.

Excess CC shall be added to AO/AG to Maximize Total "CREWS"

Figure 8. Crews Available (Pilot Driven)

c. In Figure 9, the number of total "Crews" (16) is limited by crew chief O/H manning (16/1=16) even though the total number of pilots could provide 17 crews.



	O/H	T/O	%T/O
PILOTS	34	38	0.89
CREW CHIEFS	16	26	0.62
AERIAL OBS/GUN (16ACFT*1.6)	20	26	0.77
CREWS	16	19	0.84

1. If %T/O >= .90, then CMMR is used for CMTL Development
2. If %T/O < .90, then ACMMR [(%T/O)(CMMR)] is used for CMTL Development.

Excess CC shall be added to AO/AG to Maximize Total "CREWS"

Figure 9. Crews Available (Crew Chief Driven)

6. Core Capability Percentage Adjustment

a. A unit that has a reduced number of pilots, crew chiefs, or AO/AGs may not be able to build the requisite number of crews required to accomplish a unit's fully-crewed (T/O) core capability statement.

b. The number of O/H crews divided by the number of T/O crews provides the Core Capability Percentage (%T/O) (Figure 10). If the Core Capability Percentage is less than 90%, then a corresponding percentage reduction is made to the published CMMR for each Core Skill and for each combat leadership designation (see CMMR section). This percentage reduction to CMMR is called the Adjusted CMMR (ACMMR) and it affects the calculated training level thresholds for each Core Skill and combat leadership designation in order to account for the reduced manning level. See paragraph 8 (CMTL Thresholds) of this appendix for more on this subject.

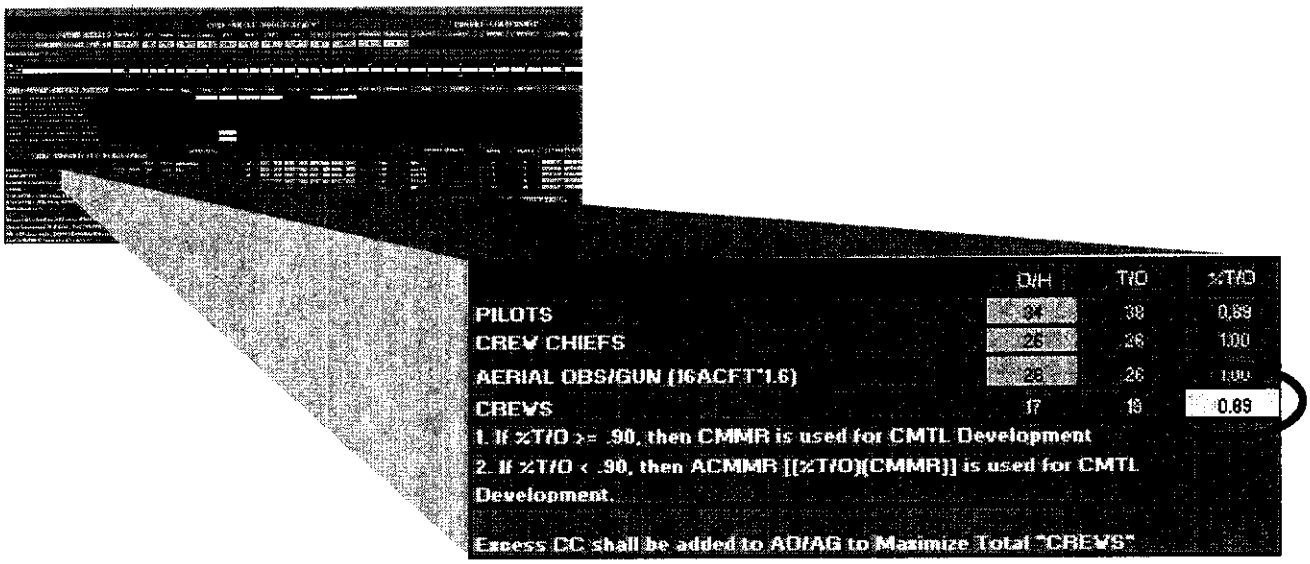


Figure 10. Core Capability Percentage Note Application

c. In the event that a lack of AO/AGs adversely affects the crew Core Capability Percentage, crew chief excess quantities can be applied to the AO/AG to bring the total crews to a higher number. Figure 11 demonstrates a low O/H amount of AO/AG negatively impacting Crew total. However, by adding "excess" crew chiefs to the AO/AG total we effectively raise the total number of O/H crews from 12 to 15. This calculation occurs within the CMTR with no user input required other than to ensure that the SARA or M-SHARP database contains all appropriate aircrew identification information required to identify and "count" the crews assigned.

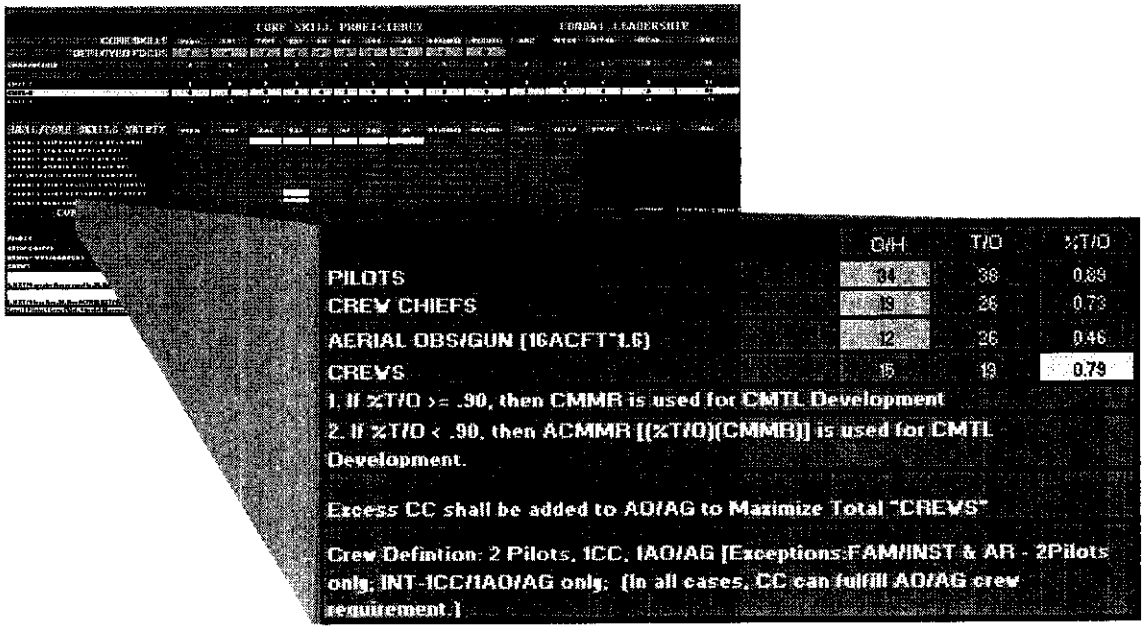


Figure 11. "Crew" Calculation via Crew Chief Excess

7. **Core Model Minimum Requirement (CMMR).** The CMMR for CSP reflects the number of CSP crews required by each T/M/S specific T&R manual for the unit to perform in accordance with its Core Capability Statement given 90% or more crew manning. In order to calculate the maximum number of CSP crews for a given Core Skill, the system must tally the number of individuals who are CSP in each Core Skill. In order to give the Pilot Training Officer, Operations Officer, etc. greater visibility, the numbers of CSP crewmen are provided via the CMTR. The individual aircrews are "counted" because they have first attained and then maintained Core Skill proficiency in accordance with the specific T&R. As shown in Figure 12, the number of crews (community determined) associated with each Core Skill is equivalent to the CMMR (with greater than or equal to 90% on hand aircrew).

CORE SKILLS						
FAM/INST	16	16	32	-	-	16
INT	12	12	-	12	12	12
FORM	12	12	24	12	12	12
CAL	12	12	24	12	12	12
TERF	12	12	24	12	12	12
EXT	12	12	24	16	16	12
GTR	12	12	24	12	12	12
AR	12	12	24	-	-	12
CQ	12	12	24	12	12	12
AG	8	8	16	8	8	8
TAC	8	8	16	8	8	8
HLL	12	12	24	12	12	12
LLL	8	8	16	8	8	8

Figure 12. CH-53E Core Model Minimum Requirement for CSP

8. **Core Model Training Level (CMTL) Thresholds**

a. CMTLs represent numbers of whole crews or combat leaders required to attain various levels of readiness within each Core Skill or combat leadership category. In order to derive the thresholds, a CMMR baseline value is used.

(1) CMMR Baseline. In order to produce a training level in terms of CSP Crews and Combat Leaders (and to adjust the requisite numbers based on Core Capability manning percentages), it is necessary to create CMTL threshold values in terms of numbers of CSP crews (and combat leaders) rather than the historical USMC Status of Resources and Training System (SORTS) Combat Readiness Percentage (CRP) metric as shown in Figure 13.

Unit T-Level	Unit Combat Readiness Percentage
T-1	>=85%
T-2	>=70%
T-3	>=55%

Figure 13. USMC SORTS (T-Level Metrics) (Historical)

(2) As discussed earlier, the CMMR number of crews and combat leaders is now the standard for measurement of unit training readiness. Therefore, CMMR is the "new" minimum T-2 level. Further, if CMMR and minimum T-2 are equivalent, then CMMR = 70%. This leads to the question, "70% of what?" We identify the "what" as the "CMMR Baseline." Figure 14 displays a generic picture of CMTL threshold values for all unit CSP and combat leadership crew quantities. For further understanding

of how this logic completes the picture, see section 8.b. (CMTL Calculation Formula).

CMTL-2	CMMR Baseline Number for CSP Crews or Combat Leaders.
CMTL-3	Unit achieved 55% of CMMR Baseline Number for CSP Crews or Combat Leaders.

Figure 14. Core Model Training Level Thresholds

(3) Actual threshold levels (in terms of crews) are calculated for each Core Skill and each Combat Leadership Designation using the method below. Given 90-100% crew manning and the CMMR values listed in Figure 15, follow the steps below to derive the CMTL Threshold values:

CORE CAPABILITY PERCENTAGE				CORE SKILLS	CMMR	ACMMR
	O/H	T/O	%T/O	FAM/INST	16	16
PILOTS	38	38	1.00	INT	12	12
CREW CHIEFS	28	28	1.00	FORM	12	12
AERIAL OBS/GUN (16ACFT*1.6)	26	26	1.00	CAL	12	12
CREWS	19	19		TERF	12	12
1. If %T/O >= .90, then CMMR is used for CMTL Development				EXT	12	12
2. If %T/O < .90, then ACMMR [(%T/O)(CMMR)] is used for CMTL Development.				GTR	12	12
				AR	12	12
				CQ	12	12
Excess CC shall be added to AO/AG to Maximize Total "CREWS"				AG	8	8
Crew Defintion: 2 Pilots, 1CC, 1AO/AG [Exceptions:FAM/INST & AR - 2Pilots only; INT-1CC/1AO/AG only; (In all cases, CC can fulfill AO/AG crew requirement.]				TAC	8	8
				HLL	12	12
				LLL	8	8

Figure 15. Core Skills (CMMR) Based Upon 90-100% Manning (CH-53E)

(4) Complete all calculations through the last step and then round crews to the nearest whole number. If an even split exists between crews then round up to the next whole number.

b. CMTL Threshold Calculation Process Based Upon CMMR

Step 1. Identify Unit Manning Level (90-100%)

Step 2. Identify CMMR by Core Skill (from the T/M/S specific T&R). The source for CMMR for each Core Skill is the T&R Core Model.

Step 3. Calculate CMMR Baseline for each Core Skill. If 12 is the CMMR (T-2 or 70%) for a given Core Skill, then we determine the "CMMR Baseline" using the following formula:

If CMMR = .70x
Then CMMR/.70 = x

Therefore 12 = .70x
12/.7 = 17.14 (CMMR Baseline for this particular Core Skill)

Identify CMMR Baseline for each Core Skill using the above method.

Core Skill	FORM	CAL	TERF	EXT	DM
CMMR/.7	12/.7	12/.7	12/.7	12/.7	8/.7
CMMR Baseline	**17.14**	**17.14**	**17.14**	**17.14**	**11.43**

Core Skill	AR	TAC	AG	NVG(HLL)	NVG(LLL)
CMMR/.7	6/.7	8/.7	8/.7	12/.7	8/.7
CMMR Baseline	**8.57**	**11.43**	**11.43**	**17.14**	**11.43**

Step 4. Identify Appropriate Core Model Training Level Thresholds for each Core Skill.

Core Skill: FORM (Given aircrew manning at: 90-100% T/O)

Use CMMR Baseline for each Core Skill to determine CMTL Thresholds.

FORM: CMMR Baseline 17.14

CMTL-1 >=.85(17.14)= 14.57	CMTL-1 =>15 Crews
CMTL-2 >=.70(17.14)= 12.00	CMTL-2 =>12 Crews Meets CMMR
CMTL-3 >=.55(17.14)= 9.43	CMTL-3 => 9 Crews
CMTL-4 < .55	CMTL-4 < 9 Crews

Step 5. Repeat process for each Core Skill.

The results of the CMTL Threshold calculations above for each Core Skill (assuming >90% crew on-hand) are shown below in Figure 16. Figure 16 also provides a corresponding color-coded CMTL rating for each Core Skill.

CORE SKILLS	FORM	CAL	TERF	EXT	DM	AR	TAC	AG	NVG(HLL)	NVG(LLL)
CMTL-2 (CMMR)	12	12	12	12	8	6	8	8	12	8
CMTL-3	9	9	9	9	6	5	6	6	9	6
CMTL-4	<9	<9	<9	<9	<6	<5	<6	<6	<9	<6

Figure 16. Core Model Training Level Thresholds

c. CMTL threshold calculations process based upon adjusted CMMR (ACMMR). The CMMR derived from each T/M/S T&R is based upon T/O crew manning (90-100%) but requires an adjustment for unit crew manning levels below 90%. In this way, the readiness assessment provides a T-level value for how well the unit is training the crews it possesses. The following procedure allows us to calculate ACMMR for each Core Skill. ACMMR is displayed as whole crews as shown in Figure 17. However, the CMTL threshold formula uses raw-ACMMR (non-rounded) in order to complete the threshold calculations. When the last step is completed, thresholds are rounded to the nearest whole number. If an even split exists between crews then the process rounds up to the next whole number.

CORE CAPABILITY PERCENTAGE			
	O/H	T/O	%T/O
PILOTS	34	38	0.89
CREW CHIEFS	26	26	1.00
AERIAL OBS/GUN [16ACFT*1.6]	26	26	1.00
CREWS	17	19	0.89

1. If %T/O >= .90, then CMMR is used for CMTL Development
2. If %T/O < .90, then ACMMR [(%T/O)(CMMR)] is used for CMTL Development.

Excess CC shall be added to AO/AG to Maximize Total "CREWS"

Crew Defintion: 2 Pilots, 1CC, 1AO/AG [Exceptions:FAM/INST & AR - 2Pilots only, INT-1CC/1AO/AG only; (In all cases, CC can fulfill AO/AG crew requirement.)

CORE SKILLS	CMMR	ACMMR
FAM/INST	16	11
INT	12	11
FORM	12	11
CAL	12	11
TERF	12	11
EXT	12	11
GTR	12	11
AR	12	11
CQ	12	11
AG	8	7
TAC	8	7
HLL	12	11
LLL	8	7

Figure 17. Adjusted CMMR (Based Upon Less Than 90% Crew Manning) (CH-53E)

Step 1. Identify Unit manning level percentage 89.47%. <90% therefore ACMMR required.

Step 2. Identify CMMR by Core Skill (from the T/M/S specific T&R). The source for CMMR for each Core Skill is the T&R Core Model.

Step 3. Calculate ACMMR Baseline for each Core Skill (since unit manning level <90%)

Apply 89.47% to CMMR for each Core Skill to determine ACMMR.

FORM .8947 (12) = 10.74
CAL .8947 (12) = 10.74
TERF .8947 (12) = 10.74
EXT .8947 (12) = 10.74
DM .8947 (8) = 7.16
1.2

AR .8947 (6) = 5.37
TAC .8947 (8) = 7.16
AG .8947 (8) = 7.16
NVG(HLL) .8947 (12) = 10.74
NVG(LLL) .8947 (8) = 7.16

In order to calculate the ACMMR CMTL Thresholds, we apply the same formula and process we followed above but substitute Core Skill ACMMR Baseline results.

If 10.74 is the ACMMR (70% or T-2), then we determine ACMMR Baseline using the following formula:

If ACMMR = .70x
Then ACMMR/.70 = x

If 10.74 = .70x
Then 10.74/.7 = 15.34 (15.34 crews equates to the ACMMR Baseline for this Core Skill)

Core Skill	FORM	CAL	TERF	EXT	DM
ACMMR/.7	10.74/.7	10.74/.7	10.74/.7	10.74/.7	7.16/.7
ACMMR Baseline	**15.34**	**15.34**	**15.34**	**15.34**	**10.23**

Core Skill	AR	TAC	AG	NVG(HLL)	NVG(LLL)
ACMMR/.7	5.37/.7	7.16/.7	7.16/.7	10.74/.7	7.16/.7
ACMMR Baseline	**7.67**	**10.23**	**10.23**	**15.34**	**10.23**

Step 4. Identify Appropriate CMTL Thresholds for each Core Skill.

Core Skill: FORM (Aircrew Manning @ 89.47%)

Use ACMMR Baseline for each Core Skill to determine CMTL Thresholds.

FORM: ACMMR Baseline **15.34**
CMTL-1 >=.85(15.34)= 13.04 **CMTL-1 >=13**
CMTL-2 >=.70(15.34)= 10.74 **CMTL-2 >=11**
CMTL-3 >=.55(15.34)= 8.47 **CMTL-3 >= 8**
CMTL-4 < .55 **CMTL-4 < 8**

Step 5. Process repeated for each Core Skill.

Figure 18 provides the color-coded results of the ACMMR-based CMTL Threshold calculations using the above formula for each Core Skill.

CORE SKILLS	FAM INST	INT	FORM	CAL	TERF	EXT	GTR	AR	CR	AG	TAC	HLL	LLL
CMTL-2	14	11	11	11	11	11	11	11	11	7	7	11	7
CMTL-3	11	8	8	8	8	8	8	8	8	6	6	8	6
CMTL-4	<11	<8	<8	<8	<8	<8	<8	<8	<8	<6	<6	<8	<6

Figure 18. ACMMR-based CMTL Thresholds

9. Core Skills versus Core Plus Skills

a. Core Skills are specific mission-related task areas that support a community's METL and consist of like T&R events. Individuals must first "attain" and then "maintain" proficiency in Core Skills in order to execute the unit core capability.

b. Fleet units emphasize proficiency in 2000-3000 phase Core Skills. Mastery of Core Skills results in highly trained personnel who contribute to the unit's overall warfighting capability and enables a combat unit to accomplish its assigned mission.

c. Each T/M/S community has determined those aviation-specific abilities that individual aircrew must maintain (through proficiency in T&R events) in order to support a unit's METL. The tables in the T&R manual are laid out as a quick reference for readers to determine both a unit's Core Skills and the events required to attain and maintain proficiency in each given Core Skill.

NOTE

Skills that have a high risk or low probability of execution, or are theater-specific are considered "Core Plus" skills. Core Plus training is not considered essential to achieve unit Core Competency. Core Plus events are not considered in unit readiness reporting criteria.

10. **Core Skill Proficient Crews**

a. As discussed above, in order for an individual to be considered proficient in a given Core Skill, he'll first have to attain CSP by gaining proficiency in all of the Core Skill events in the "Attain Core Skill Proficiency" table of the T/M/S T&R Manual, in accordance with rules set forth in the T&R Program Manual. For example, Figure 19 shows that a CH-53E Pilot must attain proficiency (simultaneous proficiency status) in events EXT-240, 241, 242, 340, 341, and 343 in order to attain EXT CSP and therefore to count towards the 12 required EXT CSP crews (24 pilots 90-100% Crew manning).

CH53E PILOT	FAM/ INST	FORM	CAL	TERF	EXT	GTR	AR	CQ	TAC	AG	HLL	LLL
T&R Event Requirements to Attain Core Skill Proficiency	200 201	210	220 221	230 231	240 241 242 340 341 343	250 350	260 360 361 362	270 271 272 273	290 390	280 380	202 211 222 223 224 232 233 243 244 291	320 321 322 330 331 342 391

Figure 19. CH-53E Pilot Attain Core Skill Proficiency

b. Figure 20 below is also extracted from the specific T/M/S T&R manual and indicates when a pilot has attained CSP, he "maintains" CSP by remaining proficient in events EXT-241, 341, and 343. The pilot must maintain this proficiency (in all 3 events) in order to continue to count toward the unit CMMR as an EXT CSP pilot. If the individual goes delinquent in any "CSP Maintain Table" event within the EXT Core Skill, he is no longer considered CSP in the EXT Core Skill.

CH53E PILOT	FAM/ INST	FORM	CAL	TERF	EXT	GTR	AR	CQ	TAC	AG	HLL	LLL
T&R Event Requirements to Maintain Core Skill Proficiency	201	210	220	231	241 341 343	350	361 362	273	390	280 380	211 223 233 244 291	321 331 342 391

Figure 20. CH-53E Pilot Maintain Core Skill Proficiency

c. Applying the same logic to the crew chief and AO/AG syllabi, we end up with a list of individual crewmen within a given unit who are either "CSP" or "not CSP" in every Core Skill. Since a CH-53E crew is defined as 2 pilots, 1 crew chief, and an AO/AG (except in FAM/INST and AR), we end up with an aggregate number of CSP crews in each Core Skill area. Figure 21 provides an example of the number of individuals who have both attained and are maintaining proficiency in all of the events represented in their syllabus CSP Attain and Maintain tables. These individuals are then used to form ("build") CSP Crews. In this example we assume <90% O/H crew manning and therefore use ACMMR as the standard for T-2.

CORE SKILLS	FAM INST	FORM	CAL	TERF	EXT	GTR	AR	CQ	TAC	AG	HLL	LLL
CMTL-2 (>=90%O/H)	16	12	12	12	12	12	12	12	8	8	12	8
CMTL-2 (89% O/H)	14	11	11	11	11	11	11	11	7	7	11	7
CSP PILOTS	23	24	24	24	23	18	27	15	16	16	24	16
CSP CREW CHIEFS	-	12	12	15	12	12	-	12	8	8	12	8
CSP AER OBS/GUNS	-	12	10	9	12	12	-	12	8	8	12	8
CSP CREWS	11	12	11	12	11	9	13	7	8	8	12	8
CORE SKILL CMTLs												

Figure 21. CSP Crews and Associated Unit CMT Levels (89% Manning)

d. The CMTL values noted in yellow (FAM/INST and GTR) indicate that the CMTL-3 threshold was met in terms of CSP crews but that the number of crews fell short of the CMTL-2 threshold. Also note that in the Core Skills of TERF, although only 9 AO/AGs met CSP requirements, by using the "excess" crew chiefs, the total crews were raised to 12 to match the number of CSP pilot crews.

11. Mulligan Rule. The Mulligan Rule states that, when determining the aggregate Unit T-Level for the CSP Section, the T-level Model shall "ignore" the lowest CMTL value among each reportable Core Skill and assign the next applicable CMTL as the Unit CSP T-level. For example, in order to be considered a T-2 unit for CSP (achieving Unit CMMR), a unit must possess the CMMR (or ACMMR) quantity of crews for all but 1 Core Skill. In Figure 21, the unit has met or exceeded the CMMR standard in all but 3 Core Skills. The system "ignores" the lowest of these (CMTL-4 in CQ) and calculates final Unit T-Level based on all other CMTL assignments in accordance with paragraph 12 below.

12. Unit Core Skill Proficiency T-Level Assignment (Aggregate of CMTL). Final Unit CSP measurement is determined by comparing the number of CSP crews with corresponding CMTL thresholds for each Core Skill and applying the Mulligan Rule to the lowest CMTL value. Once the Mulligan is taken, Unit CSP is described in terms of T-Level vice CMTL values (which are used to describe various levels of readiness within a single or multiple Core Skills). If the unit indicated in Figure 21 above had one more CMTL-4 Core Skill (total of two), the unit would "take the Mulligan" on the lowest but still be assigned a Unit CSP training level of T-4.

13. Operational Focus Application

a. Due to the realities of Marine Aviation, worldwide deployments and contingency operations, there will be cases where a unit cannot or should not train to certain Core Skills. Depending on the anticipated mission scenario, a commander may direct that his units train to specific Core Skill (or Core Plus skill) areas while accepting a lower level of training in others. It is the commander's call (Wing CG or MAGTF). In order to accurately report training readiness during pre-deployment or deployed operations with specific mission environments or requirements, adjustments must be made if some Core Skills are not exercised. This adjustment is applied through an "Operational Focus" modifier that is incorporated into the reporting method.

b. Figure 22 shows the potential readiness reporting (T-Level) impact of a unit that does not train to the Core Skill areas of, for example, GTR and CQ due to mission area specific requirements that do not demand proficiency in these particular Core Skills. Their 7 CSP crews "built" in each Core Skill make them CMTL-4 in both of these Core Skills. One is thrown out via the Mulligan Rule, but

the other CMTL value remains. This would make their overall Unit CSP T-level a value of T-4, with no means to account for their specific mission requirements.

c. The low numbers of crews built may be due to mission considerations for exercising other Core Skills above these. The inability to account for mission considerations may, from reporting perspective, result in an artificial decrease in T-Level that may not be significant in the mission environment at the time of reporting.

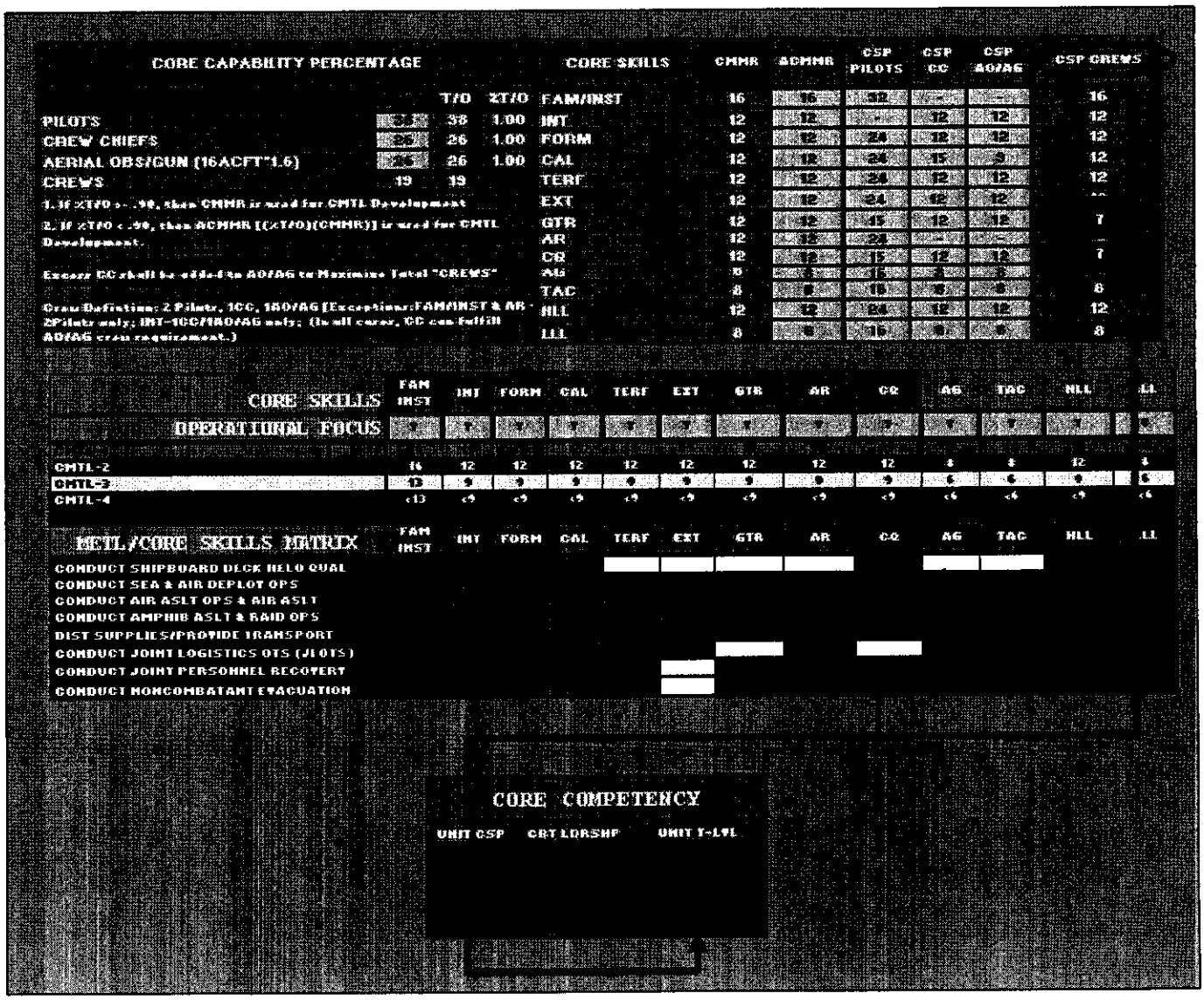


Figure 22. Reduced CSP T-Level due to Deployed Mission Oriented Training

14. **Operational Focus Activation.** Several measurements and displays in the model are adjusted to account for a decision to "opt out" of training to one or more Core Skills. First, the unit enters an "N" into the Deployed Focus section under the appropriate Core Skills. This indicates that, due to operational mission specific considerations, the unit is not training to these particular Core Skills and that these Core Skills shall not be considered in the Unit Core Skills Proficiency T-Level analysis. If an "N" is entered into the Deployed Focus Section, the system

appends an "X" to the final Unit CSP value in the Core Competency Section. The "X" indicates that a comment must be made in the commanding officer's comment portion of the SORTS report that the unit has "opted out" of training to 1 or more Core Skills due to mission requirements. The commander shall explain his reasoning. In Figure 23, note that the unit has "opted out" of training to both GTR and CQ and the resultant T-Level value for Unit CSP is based on total crews built in all other reportable Core Skills.

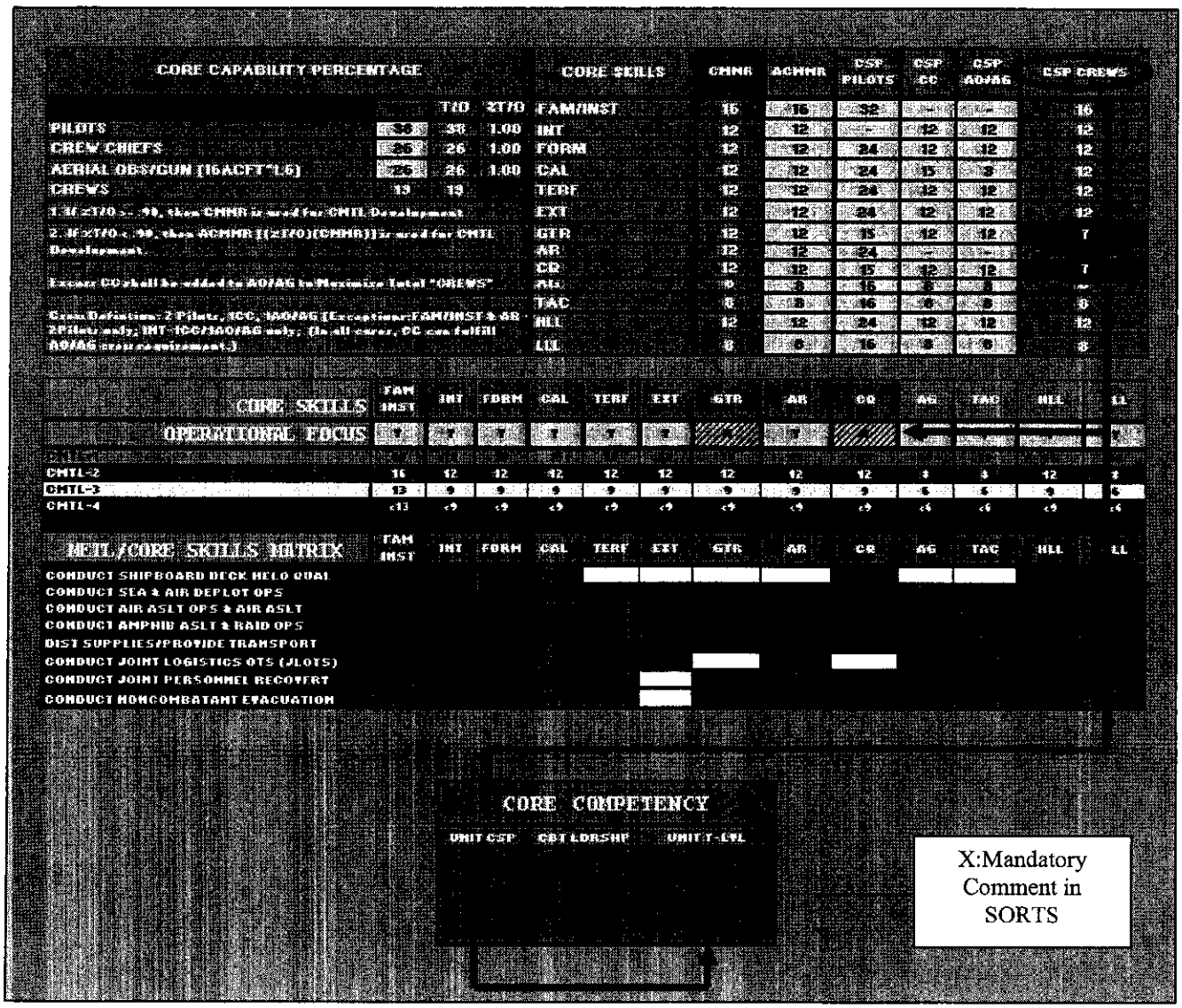


Figure 23. Deployed Focus "Opt Out" Entry Results

15. <u>Authority to Grant Operational Focus</u>. The granting authority for entering an "N" into the Operational Focus Section for specific Core Skill training shall rest at the commanding general or MAGTF Commander level. Units may opt out of Core Skill training as authorized by the commander. Unit commanders shall comment on the reasons for the "opt out" decision in unit commander's mandatory comments.

16. Combat Leadership

a. Marine Aviation demands effective Combat Leaders. In terms of Unit Core Competency, Combat Leadership is defined in terms of minimum numbers of tactical leaders certified by T&R standards and designated in writing by unit commanding officers.

(1) Combat Leadership Designations. Figure 24 below is extracted from the T/M/S T&R Manual and indicates that a CH-53E squadron must possess at least the indicated minimum number of individuals with the following Combat Leadership designations to be considered Core Competent. These numbers define the CMMR for Combat Leadership.

CH-53E Squadron	
DESIGNATION	Pilots
HAC	16
SEC LDR	9
DIV LDR	6
FLT LDR	5
AMC	4

Figure 24. Squadron Combat Leadership CMMR Requirement

(2) Core Capability Percentage. Core Capability Percentage notes apply to the Combat Leadership Section in the same manner as they apply to CSP CMMR. If the percentage T/O manning is below 90%, that percentage value is multiplied with the Combat Leadership CMMR standard to arrive at the adjusted CMMR (ACMMR) standard. Figure 25 displays the CMMR for Combat Leadership given 90-100% crew manning.

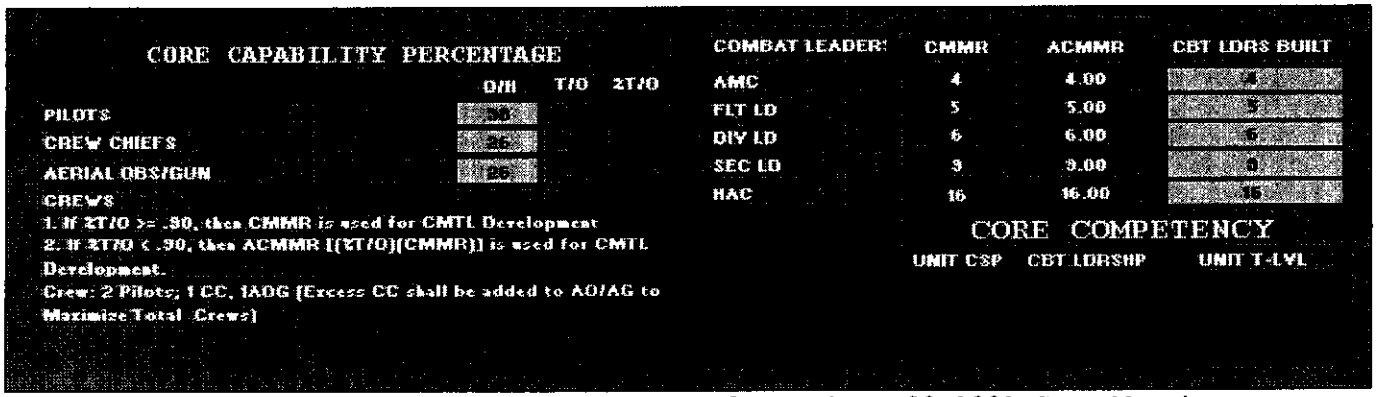


Figure 25. Combat Leadership CMMR Values Given 90-100% Crew Manning

(3) If crew manning drops below the 90% standard as found in the T&R Core Capability Statement, then CMMR is adjusted accordingly. The ACMMR calculation logic is activated and CMMR adjusted based upon the total number of assigned crews (Figure 26).

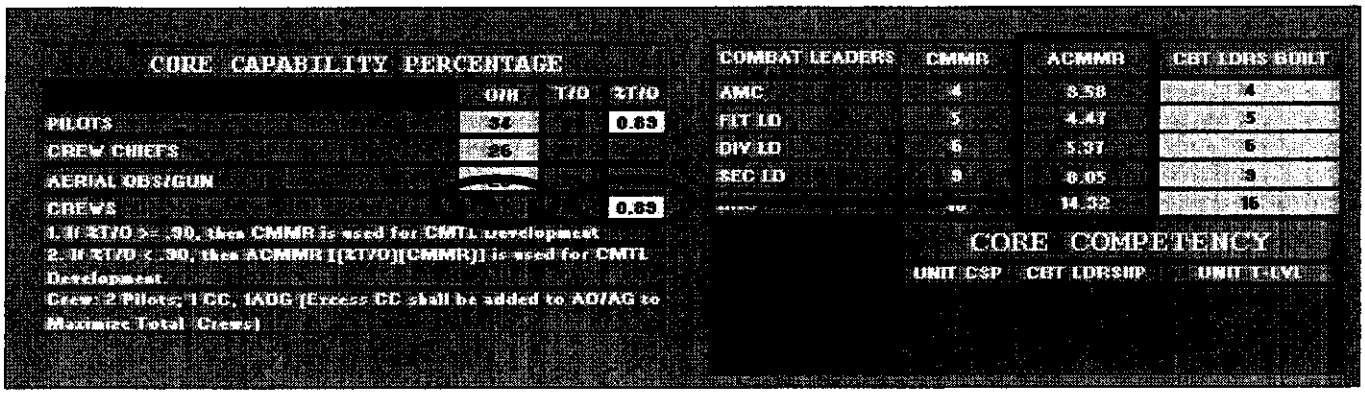


Figure 26. Combat Leadership ACMMR Values Given <90% Crew Manning

b. ACMMR values are calculated using the CMTL formula applied to Combat Leadership. These values are rounded to the nearest whole number of Combat Leaders. For a CH-53E unit with a total crew percentage of 89.47%, the CMMR-standard is adjusted considering the numbers of crews assigned to the unit. Figure 26 above also demonstrates that low CMMR values (4 and below) are not impacted as greatly as high CMMR values when adjustments in crew manning percentages occur.

c. Combat Leaders Built. The number of Combat Leaders "built" by the unit will be pulled from the M-SHARP system by accessing the Qualifications and Designations portion of the system.

d. Combat Leadership CMTL Threshold Assignment. Combat Leadership CMTLs are calculated in the same manner as CSP CMTL Threshold calculations.

e. METLS and Combat Leadership Matrix. Combat Leadership skills span the entire range of METs and the resulting "matrix" shows Combat Leadership CMTL values applying across all METs, Figure 27.

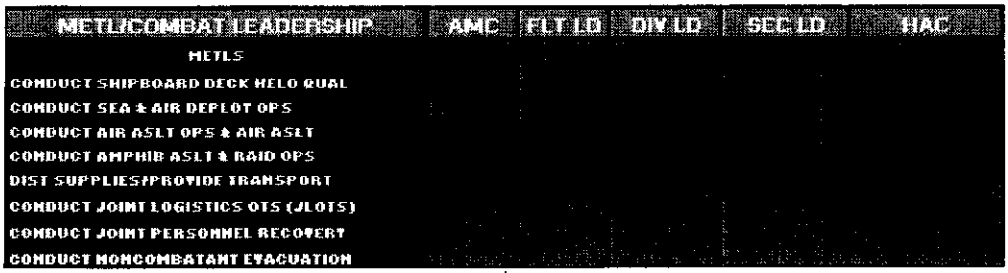


Figure 27. METL/Combat Leadership Matrix

17. Core Competency Section

a. The Core Competency Section is provided to summarize the CMTL results based upon aggregate CSP CMTLs (Unit CSP) and Combat Leadership CMTLs. As discussed earlier, both the Mulligan Rule and the Operational Focus Rule are applied to the CSP Section in order to arrive at a Unit CSP T-Level value. The Unit CSP T-Level value is compared to the final Unit Combat Leadership T-Level value. The Combat

Leadership Section does not employ either the Mulligan Rule or the Operational Focus Rule. Figure 28 indicates the calculated T-Level value for Combat Leadership as T-3 due to a shortage of Section Leads (7 out of the CMMR required 9 [90% or more T/O Manning]).

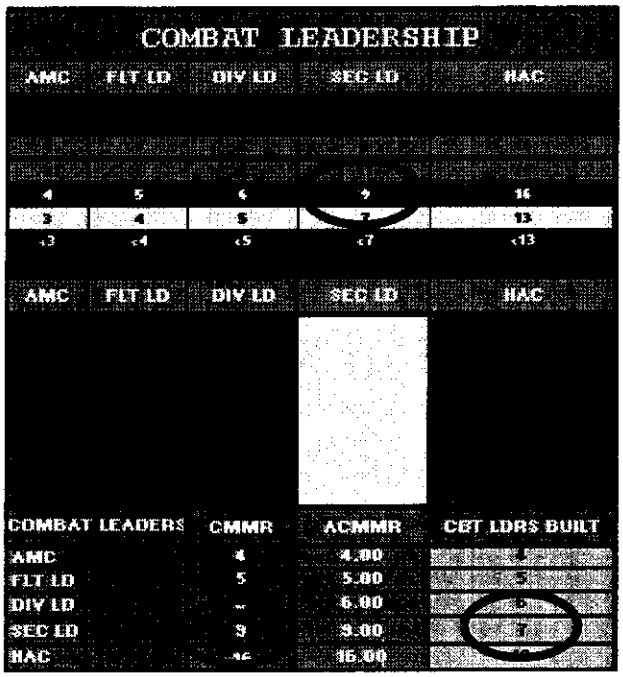


Figure 28. Combat Leadership (Section Lead Shortage)

b. The overall Unit T-level is the lower of either the CSP or the Combat Leadership T-Level value. In the above example, the Unit CSP T-Level value was T-2X. Due to the Section Lead shortage, the Unit Combat Leadership T-Level value was T-3. Therefore, in this instance the Unit overall T-Level value is T-3X reflecting the Section Lead shortage and indicating the unit had opted out of training to one or more Core Skills, requiring commander comment (Figure 29).

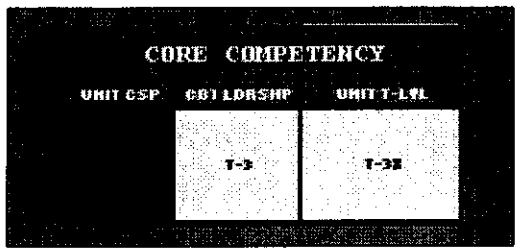


Figure 29. Unit Core Competency

18. Mandatory Subjective Comments

a. Commander's must make subjective comments in order to "fill in the holes" since a single alphanumeric designation will rarely tell the whole story. The following delineates SORTS mandatory comment areas:

(1) Commanders shall comment on any instances where CMMR has been adjusted to account for crew O/H manning. The comment shall be made in the context of the reduced crew manning impact on the unit's capacity to fulfill its "fully manned" core capability sortie generation standard. For example, a CH-53E has an

O/H crew manning of 14 crews of 19 (T/O). According to the Core Capability Statement in the T&R, the unit should be able to produce 27 sorties if crew manning is equal to or above 90% T/O (and >70% FMC). Since the crew manning level (14/19) is 74%, ACMMR is used to determine the requisite number of CSP crews. Further, the unit should be able to generate (.74 x 27)= 20 sorties for the commander.

(2) Commanders shall comment on all Core Skills that have been "opted out" in accordance with the granting authority's direction.

(3) Commanders shall comment on their unit's 3 lowest degraders with respect to the both CSP and Combat Leadership Sections.

(4) Commander's shall comment on any critical MOS's including Pilots and other aircrew effected in the "Core Capability Percentage (Total Crews) Section."

b. The Unit T-Level value shall be input into the monthly SORTS report in accordance with the USMC SORTS directive. Further rules regarding Marine Aviation implementation of this method for calculating T-level shall be forthcoming in the update of MCO P3000.13D (USMC Status of Resources and Training System [SORTS]). The update shall be designated MCO P3000.13E.

APPENDIX E

CORE COMPETENCY RESOURCE MODEL (CCRM) GUIDELINES

1. General. The Core Competency Resource Model (CCRM) identifies the external resources needed to attain and maintain a desired level of readiness for a unit. The CCRM, accredited by the Chief of Naval Operations and the Commandant of the Marine Corps was primarily developed as a Flight Hour Model to support the Flight Hour Program. It has been expanded and will include the following external resources: ordnance, indirect fire assets, ranges, targets, aggressor air, external loads, and ground assets (Helicopter Support Teams, convoys, radar support etc). At the HQMC level the CCRM is utilized a budgetary tool to justify the specific resources needed to support a level of readiness based upon training requirements for each platform or community. At the unit level it is utilized to complement the SBTP and to identify resources need to train the unit.

2. CCRM

a. The CCRM is a linear, bottom-up, qualitative model that identifies the resources required to attain and maintain a desired level of readiness based upon T&R Core Skill Proficiency (CSP) training requirements and the Core Model Minimum Requirement (CMMR) per unit. At the HQMC level it reflects a 12 month period of time (Oct-Sep) out of a normal 36 month tour for personnel. At the squadron/unit level it can be used to generate individual and unit requirements based upon CSP and CMMR.

b. Fixed inputs - Phases of Training. These inputs are incorporated into the models by the Aviation Training Branch. These inputs are derived from individual T/M/S T&R Manuals and only change when there is a revision to the T&R manual (normally on a triennial basis). The phases of training include:

(1) Core Skill events (2000-4000 phase). All Core Skill, Mission Skill, and Core Plus training events with corresponding refly intervals.

(2) Instructor Training events (5000 phase). These include events contained within T/M/S T&R and the MAWTS-1 Course Catalog (ASP). All work-up and certification events are included as well as flight hours/sorties required to train and designate a WTI at MAWTS-1 during the semi-annual courses.

(3) Combat Leadership training (6000 phase). These include both the work-up and certification events required for Combat Leadership designations.

(4) Requirements, Qualifications, and Designations (6000 phase). These include annual training requirements contained within OPNAVINST 3710.7 (NATOPS and Instrument Evaluations) and other requirements.

c. Fixed inputs - Individual Events. These inputs are incorporated into the models by the Aviation Training Branch. These inputs are derived from individual T/M/S T&R Manuals and only change when there is a revision to the T&R manual (normally on a triennial basis). Individual event resources required per event/occurrence include:

(1) Sortie duration - Established by HQMC (APP).

(2) Device - Includes flight in aircraft, simulator flight, or training device with refly interval.

(3) Ordnance - Includes quantity and type with allowable substitutes.

(4) Ranges - Specific range requirements.

(5) Targets - Quantity and type of targets requirement.

(6) Indirect Fire Support - Quantity and type of indirect fire assets required.

(7) Aggressor Air - Quantity and type of aggressor air required.

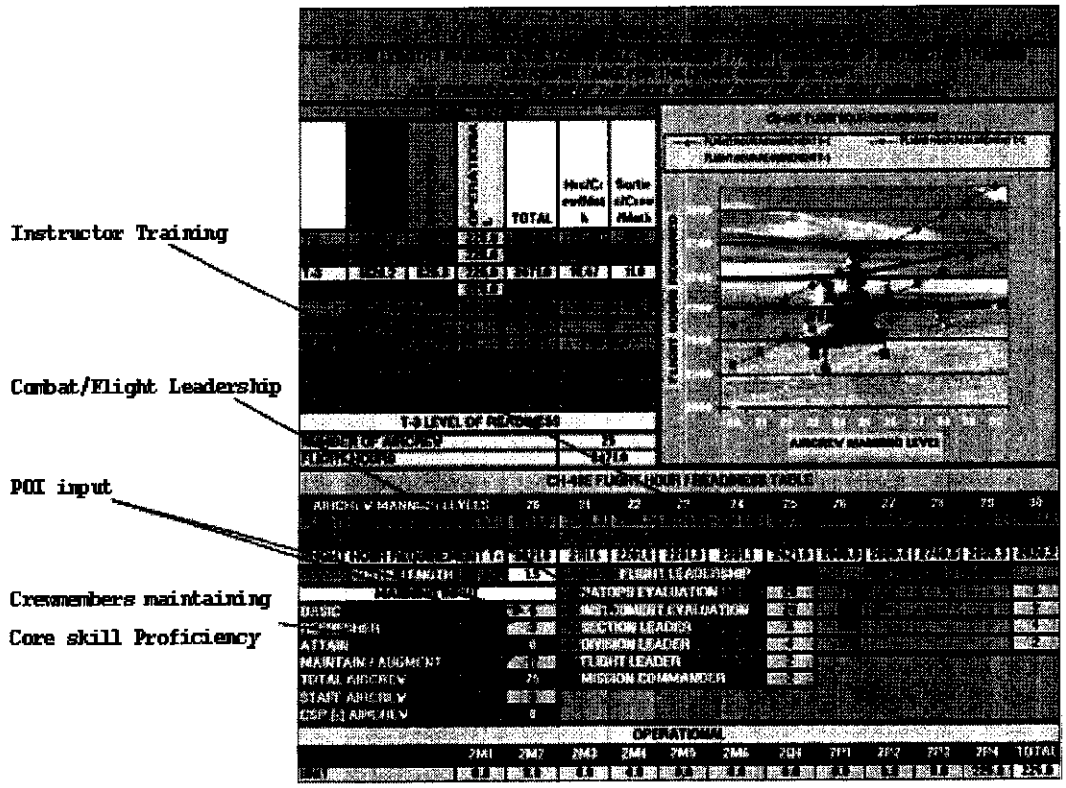
(8) External Load - Type and weight of external load required.

(9) Helicopter Support Team (HST) - Type of HST required.

(10) Convoy Support - Type of convoy support required.

(11) Other - Those other external (not organic to the unit) resources that are required to accomplish event training.

d. Variable Inputs. These inputs include the number and type of crewmembers assigned to various Programs of Instruction (POIs), the number of crewmembers that will undergo Instructor and Combat Leadership training. There inputs are done both at the HQMC level and the unit level. Inputs at the HQMC level will identify T/M/S resource requirements and at the unit level inputs may assist in developing individual unit or event requirements. See the matrix below for sample input.



Appendix F

Annual NATOPS Instrument/CRM Evaluation Samples

Below is an example of a Monthly NATOPS Emergency Procedures Simulator/Cockpit-Cabin Drill Evaluation Form. This template should be utilized to assist Model Managers and community representatives in the development of their platform scenarios.

MONTHLY NATOPS EP SIM/COCKPIT CABIN DRILL EVALUATION FORM

Name:
Date of Eval:
Duration:
Device/Buno#:
Evaluator:

SCENARIO:
Night CQ evolution launching from NKX and going to the carrier (USS "X"). Evolution should begin on the line at NKX with Start-up and end with a divert and bingo profile to NKX. The focus of this event is two-fold: 1) to practice start-up , takeoff, and landing emergencies; 2) serve as a refresher event for Case III recovery operations in the CV environment. The following types of emergencies should be covered (one from each category).

- *Start-up: Hot start, Hung start, engine fire, APU fire, R/LATS caution*
- *Take-off: Low-speed/High-speed abort, planning link failure, loss of thrust on take-off*
- *Recovery: Loss of brakes, planning link failure loss of directional control, blown tire, anti-skid failure*
- *CV Operations: Case III recovery, Case III Departure, Settling off the Catapult, Bingo profile to NKX*

NOTE

The Airman in the simulator/training device will perform at least one roll and go/aborted landing attempt and at least one max crosswind landing.

MISSION PERFORMANCE STANDARDS:

- *Start Emergencies: Recognizes engine start malfunction and executes proper procedures IAW NATOPS*
- *Abort: Makes timely decision to continue take-off roll/abort and executes proper procedures IAW NATOPS*
- *Airborne Emergencies: Executes Immediate Action Items (IAI)/Emergency procedures smoothly, slowly, and properly to safely get aircraft "On Deck" IAW NATOPS*
- *CV Operations: Executes all procedures IAW CV and F/A-18 NATOPS Manuals. Executes Emergency procedures IAW NATOPS*
- *Bingo:*
  - *Flies appropriate "BINGO" profile at the appropriate fuel state to the correct divert field.*
  - *Sets up for proper recovery at divert field.*
  - *Completes Ship-to-Shore checklist.*
- *CRM: Utilizes wingman/Base radio to manage emergencies*

EMERGENCY	*X*	*COMMENTS*
Start Engines		
Take-off Emergencies		
Airborne Emergencies		
Recovery		
Roll & Go		
Crosswind		
Case III Recovery		
Case III Departure		
Bingo Profile		

Overall Evaluation/Comments/Remarks:

Name, Rank of Evaluator:

h. Example of Annual NATOPS/CRM Evaluation Scenario. Below is an example of an annual NATOPS/CRM Scenario. This template should be utilized to assist Model Managers and community representatives in the development of their platform scenarios.

ANNUAL NATOPS/CRM EVALUATION SCENARIO 2 (ENGINE)

OBJECTIVE:
The objective of this NATOPS/CRM scenario and evaluation is to integrate the requirement for annual CRM training into the NATOPS evaluation and test the aircrew's ability to apply CRM skills during a typical simulator or flight mission.

SCENARIO:
The aircrew is the dash-two of a two-ship F/A-18C on a day AWI training mission to the local op area. While in the op area, the aircrew experiences engine problems (launch from field or CV as necessary for training).

EVALUATOR:
- *Review the CRM skills and grading criteria.*
- *Brief the aircrew on the scenario.*
- *Evaluate CRM behaviors throughout the evaluation.*
- *Play the role of wingman, ATC, and base as required.*
- *Introduce additional problems and/or distractions as required.*

BRIEFING ITEMS:
- *Scenario*
- *Takeoff data for standard configuration*
- *Weather is 800 OVC, 1-½ nm, wind 210/05 kts, altimeter 29.92, 59° (adjust weather at departure field and diverts as necessary to accomplish training)*
- *Emergencies, aircrew coordination*
- *Diverts*
- *Bingo profiles*
- *Evaluator will play the role of ATC, Lead, and Base as necessary.*

INSTRUCTIONAL TECHNIQUES:
As the evaluator, interject additional problems and/or distractions to test the aircrew's CRM skills. Some examples of what you may use include, but is not all-inclusive:

- *As the aircrew is returning to base or a divert, simulate the role of ATC and direct them to hold. Does the aircrew display effective SA and recognize that holding may not be a good option due to their emergency*

and/or fuel state? Does the aircrew display effective AS or CM and tell ATC they are unable to accept holding?

- *Simulate an ATIS report with the PAR down and weather below TACAN minimums. Does the aircrew recognize this (SA) and develop a new game plan (DM/AF)?*
- *ATC advises them the field they are going to is closed for weather, aircraft on the runway, etc.*

SCENARIO EMERGENCIES

PILOT:					DATE:	
					EVALUATOR:	
START EMERGENCIES (PICK 2)	AA	A	BA	U	NA	COMMENTS
RATS / LATS						
HOT START						
HUNG START						
ENGINE FIRE						
APU FIRE						
GROUND/TAKEOFF (PICK 2)	AA	A	BA	U	NA	COMMENTS
LOSS OF DIRECTIONAL CONTROL ON GROUND						
BLOWN TIRE ON TAKEOFF						
ABORT						
LOSS OF THRUST ON TAKEOFF						
EMERGENCY CATAPULT FLYAWAY						
EMERGENCY TAKEOFF						
OTHER:						
INFLIGHT EMERGENCIES (PICK 3)	AA	A	BA	U	NA	COMMENTS
L/R AMAD PR CAUTION						
L/R BLEED WARNING (SINGLE OR DUAL)						
L/R ENG FIRE						
RUNAWAY ENG / STUCK THROTTLE						
ENGINE FAILURE						
ENG STALL						
RATS / LATS						
LANDING (PICK 2)	AA	A	BA	U	NA	COMMENTS
SINGLE ENGINE FAILURE IN LANDING CONFIGURATION						
SINGLE ENGINE LANDING						
LANDING GEAR UNSAFE / FAILS TO EXTEND						
LANDING WITH AFT CG						
AUTO FLAP LANDING						
FIELD ARRESTMENT						
OTHER:						

Start Emergencies:

- *These, such as L/R ATS Caution or Hot Start should be loaded prior to the Aircrew starting up. Pilot should not start the L Engine until the L DDI is on line. Depending on the temperature achieved during a Hot Start, this could be a good lead in for an Engine Fire on Start.*

Taxi/Takeoff Emergencies:

- *Brake Failure during taxi has to be input early in order for the simulator to make it take effect.*
- ***(9,10)** Discuss abort parameters for runway in use.*
- *Blown Tire on T/O at 60kts can lead to Trailing Edge Flaps Off caution or corresponding engine failure if aircrew does not abort. Tower should inform aircrew of blown tire as soon as it happens.*

Area Emergencies:

- *Dual Generator failure in the OFT simulator will always produce a GEN TIE Caution after approximately 90 seconds. Brief aircrew that this is not necessarily the case in the actual aircraft. Furthermore, it is not*

possible to simulate a GEN TIE failure as a single emergency in the OFT. If you wish to simulate a GEN TIE failure, reference NATOPS on which items to fail.

- *Engine Stall should be performed at 300kts with the aircraft trimmed up. Once the Engine stall is input have aircrew accelerate to 400kts. Pilot will need to use MIL or AB depending on the way the malfunction is set up at the control panel. Only indication of engine stall may be a popping noise.*
- *Engine Fire (Single) can be removed after the immediate action procedures are completed, allowing the aircrew to perform crossbleed procedures (along with cycling the bleed air knob) to get the now-good engine back online.*
- *Flaps off caution should be a leading edge flaps failed with less than 10 deg extension. If the evaluator chooses to leave the Flaps off caution in for the duration of the RTB / Divert, use the transit time to talk the aircrew through what systems are inoperative (autopilot) as well as those that perform differently with the LEFs locked out (ATC, TEFs). Section V-14-41 of the NATOPS has amplifying information about the LEF Flaps off caution. If aircrew previously lowered the gear and TEFs are now driven down to 30, Bingo descent point will be somewhere between the half-flaps descent point and the clean descent point, requiring a steeper approach.*

RTB / Approach Emergencies: *To force Bingo profile to divert, put weather just below visibility minimums after approach is commenced. During approach, have departure advise aircrew divert is VFR. During visual straight-in to divert, aircrew can be given one additional emergency. (Once aircrew have determined the correct bingo profile and established in climb, slew the aircrew to the vicinity of divert airfield if short of time.)*

- *L/R Engine Failure in Landing Configuration.*
- *Single Main Gear fails to extend: have one main gear fail to extend with 2000lbs remaining. Aircrew will have to emergency extend the gear.*
- *Anti-Skid Failure on Short Final: it will require the aircrew to perform some remedial action. Aircrew should either decide to take it around for a short field arrestment, or deselect anti-skid and use normal brakes.*
- *HYD 2A/B Failure on final should be displayed as if the RLS system is kicking in, i.e. cycle 2A off, 2B on, both on. If aircrew does not secure the engine and setup for a single engine landing, initiate RAMD Fire.*
- *Landing Gear Unsafe/Planning Link Failure at touchdown: This emergency can also include loss of brakes, demonstrating how controllable the aircraft is at higher speeds, becoming less controllable as it decelerates.*

The Standard	***Below-Average/ Unsatisfactory Characteristics***
• ***SITUATIONAL AWARENESS (SA)***	
Demonstrate ongoing awareness of mission status and identify problems/potential problems and the need for action. *Maintain a proper scan pattern* *Monitor for trends, changes, and abnormal conditions, and share this information with other crewmembers* *Detect deviations from normal procedures and SOPs as well as task overload, underload, or tunnel vision of crewmembers* *Identify potential impact of problems to mission completion*	*Incomplete, sporadic, unaware, off track, or misjudged*
Clarify the validity of discrepant information (e.g., conflicting, ambiguous, incomplete).	*"Not my job," or unconcerned*
• ***ASSERTIVENESS (AS)***	
• *Ask questions when uncertain about decisions/procedures or objectives.*	*Unconcerned, or too timid*
State opinions, advocate course of action, and make suggestions regarding decisions/ procedures. *Request information when needed; confront ambiguities and conflicts* *Make positive calls when safety of flight is threatened; declare an emergency when needed* *Offer/recommend alternative courses of action and/or mission alternatives; provide information without being asked*	*Apathetic, or intimidated*
• ***DECISION MAKING (DM)***	
Identify that a decision must be made based on situational assessment.	*Ignore the problem*
Gather, crosscheck, and evaluate information sources (other crewmembers, ATC, metro, headquarters, support, instruments/equipment) prior to making a decision; filter out erroneous/irrelevant information.	*Jump to conclusions; be misled by poor information*
Generate and discuss alternatives using relevant data; provide rationale for all decision alternatives.	*Bias, "My way or else," close-mindedness*
Anticipate the consequences of a decision alternative.	*Not thinking things through*

The Standard	Below-Average/ Unsatisfactory Characteristics
Choose the best alternative, communicate internally and externally, and evaluate its effectiveness.	*Indecisiveness, rigidity, faulty communications*
• COMMUNICATION (CM)	
Provide appropriate response to a communication (e.g., acknowledge, repeat, request clarification).	*Ignore, respond to the feeling, incorrect response*
Use standard terminology and non-verbal signals with accurate, timely, and concise information.	*Inefficient, vague, off the subject*
• LEADERSHIP (LD)	
Direct and coordinate the activities of other crewmembers; delegate tasks to other crewmembers.	*Ignore others, disregard*
Monitor other crewmembers to see if they understand what is expected of them; maintain constructive atmosphere.	*Discount others, selfishness, hostility*
Encourage crewmember participation; provide constructive feedback to other crewmembers.	*Disregard, prejudice*
• ADAPTABILITY/FLEXIBILITY (AF)	
Alter plans and behaviors to meet situation demands; continue to function during system failures/malfunctions/changed mission.	*Inflexible, sudden loss of judgment, tunnel vision*
Step in and help other crewmembers; be receptive to input from other crewmembers. *Adapt to personality styles of other crewmembers* *Accommodate and cope with stress of other crewmembers and self*	*Lack of empathy, rigid, prejudiced*
• MISSION ANALYSIS (MA)	
Conduct thorough pre-mission planning and briefings, assembling mission information, estimating mission timing, and setting priorities based on mission requirements.	*Haphazard, incomplete, mistakes, inattentive*
Devise contingency plans for unplanned events.	*Unprepared, no backup plans*
Report ongoing challenges to the mission plan; offer alternatives.	*Apathetic, no backup plans, intimidated*
Conduct thorough post-mission debriefs, effectively using feedback techniques.	*Incomplete, errors, omissions*

NATOPS EVALUATION FORM

Name:
Date of Eval:
Duration:
Buno#:

Mission Planning	***Q***	***CQ***	***U***
Flight Planning			
Briefing			
Personal Flt Equipment (*)			
Pre-Flight Line Ops			
Aircraft Acceptance			
Start			
Before Taxiing Procedures			
Taxi			
Taxi			
Takeoff (*)			
ATC Clearance			
Takeoff			
Climb/Cruise			
Departure			
Climb and Level-Off			
Procedures Enroute			
Approach/Landing (*)			
TACAN, GCA, ACLS, RADAR, ADF			
Landing			
Communications			
R/T Procedures			
Visual Signals			
IFF Procedures			

Emergency/Malfunction Procedures (*)	***Q***	***CQ***	***U***
Emergency/Malfunction Procedures			
Post Flight Procedures			
Taxi			
Shutdown			
Inspection and Records			
Flight Debriefing			
Mission Evaluation			
Mission Evaluation			
Crew Resource Management Skills (*)			
Decision Making			
Assertiveness			
Mission Analysis			
Communication			
Leadership			
Adaptability/Flexibility			
Situational Awareness			
Other			
Grading: *Qualified=*	***Q***		
Conditionally Qualified=		***CQ***	
Unqualified=			***U***

(*) Critical Area

Overall Evaluation/Comments/Remarks:

Name, Rank of Evaluator: _____

Ref: NATOPS Publication A1-F18AC-NFM-000, Chapter 29

ANNUAL NATOPS INSTRUMENT/CRM EVALUATION SCENARIO

INTRODUCTION:

The primary purpose of this instrument evaluation is to evaluate the Airman's ability to conduct a flight using proper instrument procedures and to renew the Airman's awareness of the Instrument Flight Rules (IFR) environment and the tools available to him. The secondary objective is to integrate the requirement for annual Crew Resource Management (CRM) training in the annual Instrument Rating Evaluation and test the Airman's ability to apply CRM skills during typical simulator or flight mission.

SCENARIO:

WTI is currently in progress at MCAS Yuma. You have been tasked by the MAG Commanding Officer to ferry a single F/A-18 to MCAS Yuma in support of WTI. The MAG Commanding Officer has made it clear that the jet needs to be delivered to make the next day's flight schedule.

EVALUATOR:

- *Review the CRM skills and grading criteria.*
- *Brief the aircrew on the scenario.*
- *Evaluate CRM behaviors throughout the evaluation.*
- *Play the role of ATC, and base as required.*
- *Introduce additional problems and/or distractions as required.*

BRIEFING ITEMS:

- *Ensure that the evaluation pilot/aircrew has current publications*
- *Mission: Ferry aircraft to MCAS Yuma in support of WTI*
- *Configuration: Single centerline external fuel tank and two pylons*
- *WX: KNKX – 005 OVC 2, tops at 40K, KNJK – 007 OVC 2, KNYL – 005 OVC 3, tops at 40K*
- *NOTAMS: KNYL PAR RWY 3L/21R down*

MIRAMAR ATIS:

- *MCAS Miramar ATIS information Alpha, time 2200Z, Miramar landing and departing RWY 24, current sky condition 500 overcast, 2000 broken, 8000 broken, 20000 broken, visibility 2 miles and light rain, winds 330 at 20G30 kts, temperature 12, dew point 13, altimeter 29.80, precision approaches to RWY24 in use. Advise on initial contact you have information Alpha.*

CLEARANCE:

- *You are cleared to MCAS Yuma via I-13, climb and maintain one one zero, expect FL230 ten minutes after departure, departure frequency 363.1, squawk 2250.*

NOTE

I-13 (FL230 – KNKX - JLI3 – IPL – IPL 07422 – RADOS – KNYL)

TAKEOFF / DEPARTURE:

- *JLI 3 IPL*
- *Clear the aircraft direct GWIRE*

ROUTE:

- *The aircrew should check MCAS Yuma ATIS and get the following:*
  MCAS Yuma ATIS information Tango, time 2230Z, Yuma landing and departing RWY 03, current sky condition 500 overcast, 2000 broken, 8000 broken, 20000 broken, visibility 2 miles and light rain, winds 350 at 10G20 kts, temperature 12, dew point 13, altimeter 29.80, precision approaches not available, HI-TCN RWY 3 approach available. Advise on initial contact you have information Tango.
- *The aircrew should ask for the HI-TCN RWY 3L KNYL*
- *MCAS Miramar has degraded to 100 and ½.*
- *Input intermittent NAV VEL and VVEL caution.*

APPROACH 1:

- *Ensure that the aircrew makes all altitudes*
- *Set the weather in the simulator to 100 overcast and ½-mile visibility.*
- *Give the updated weather to the aircrew during the approach as 300 overcast and 1-mile visibility (This is below minimums, but they may continue the approach since they have already commenced.).*
- *Continue to a missed approach.*

APPROACH 2:

- *MCAS Yuma now reports the PAR to RWY 3L is operable.*
- *Offer a PAR to the aircrew.*
- *Induce an Inertial Navigation Systems (INS) failure, the aircrew should request a "NO GYRO PAR to RWY 3L or Input a Heads-Up Display (HUD) failure. Aircrew should be flying off of the standby instruments.*

- *Full stop, mission complete.*

NOTES:

- *N32 31 46 W114 45 14*
- *KNYL 10nm final RWY 3L*

Requirements

All instrument publications are required. Evaluee must, given the assigned mission and forecasted weather, prepare a DD-175/1801 and Jet Log (a PFPS/JMPS planned route is acceptable) to include takeoff data.

_____

_____

Departure

Note: For each phase of flight, italicized text is a quote for the evaluator to read over the ICS. Each bullet of text will indicate what role the evaluator is to play.
{ Start the evaluee with aircraft running in position and hold on clearance frequency.}
{ Clearance: _____ 11, advise when ready to copy.}
{ Evaluee responds.}
{ Clearance: _____ 11, is cleared to Marine Yuma via planned flight route, climb and maintain two three thousand, departure frequency 269.1, squawk 3200.}
{ Evaluee responds.}
{ Clearance: _____ 11, readback correct, have a safe flight.}
{ Evaluee switches tower, calls for takeoff.}
{ Tower: _____ 11, is cleared for takeoff, switch to departure.}
{ Evaluee responds, switches frequency for deck check.}
{ Departure: _____ 11, SoCal, report airborne.}
{ Evaluee responds, executes takeoff, calls airborne.}
{ Departure: _____ 11, climb and maintain 7,000 feet.}
{ Evaluee responds, executes.}
Note: The evaluee could ask LA Center for his final assigned altitude.
{ Departure: _____ 11, climb and maintain 13,000 fee, passing 10,000 feet switch LA Center, 346.4. Ensure compliance with SID, and acceptable deviations in airspeed and altitude.}
□_*Comfort Time*_____
□_*At least 2 unusual attitudes (Nose High / Nose Low)*_____
□_*Once complete with evaluee unusual attitudes, direct to RTB (slew if required for time)*_____
□_*Drop fuel as appropriate to approximate evaluee's briefed BINGO numbers (take slew into account)*___

Enroute

{ Evaluee checks in. Slew aircrew position as appropriate as desired.}
{ Center: _____ 11, is cleared present position direct Thermal, rest of route unchanged. Climb and maintain FL230.}
{ Evaluee responds.}
{ Center: (After evaluee arrives at Blythe) _____ 11, is cleared to the RADOS Initial Approach Fix (IAF), contact Yuma Approach 124.7 0r 374.8.}
{ Evaluee responds, switches to approach.}

_____

_____

YUMA APPROACH

{ ATIS: MCAS Yuma ATIS information Juliet, time 2400Z, Ceiling 400, visibility 1 1/4 –mile in rain, winds 030 at *10 knots, temperature 75, dew point 45, altimeter 29.92, departures and instrument approaches to runway 3L.}*
{ _____ 11, upon arriving at RADOS enter holding for one turn at FL230.}
{ Evaluee responds.}
{ Approach (after evaluee complies with holding instructions) Upon arrival at RADOS, _____ 11 is cleared for the HI-TCN RWY 3L approach. Report leaving FL230.}

{ Evaluee responds.}

**** Once approach has commenced, drop weather to PAR minimums with no advisory to the Evaluee. Evaluee should descend to MDA, not break out, and execute published missed approach procedures.***

****NOTE****

Evaluee should recognize that the weather is at minimums and consider fuel and weather on the return to MCAS Miramar. Approach should be flown to MDA. If evaluee asks for the weather at MCAS Miramar, it is 200 ¾-mile visibility and forecast to remain so. Have aircrew decide to set appropriate BINGO to divert to NAS El Centro if missed approach at MCAS Miramar. BINGO for 26,000, 50DI, -402 engines.

AIRFIELD FUEL REQUIRED	CLIMB A/S VECTOR	OPT ALT DESCENT	CRUISE KTS	TACAN	APP CON/TWR	RUNWAY A-GEAR
EL CENTRO (WYPT 3) 2700 LBS	490/.83MACH 101 DEG 117NM	40,000 64NM	253	NJK 47X N32-49.91' W115-40.87'	NONE/ 360.2	9,5000' E-28

{ PAR (after evaluee satisfies approach requirement). Slew to Miramar for PARs with weather at 300/1. Have aircrew request "Multiple GSA's." One should be a full-up system. At evaluator's discretion one should be with some level of degraded instrumentation (Up to "Steam Gauge" approach).}

_____

_____

_____

_____

_____

_____

INSTRUCTIONAL TECHNIQUES:

As the Evaluator, interject additional problems and/or distractions to test the aircrew's CRM skills. Some examples of what you may use follows, but is not all inclusive:

- *At the conclusion of the SID, or at the first ATC frequency switch, simulate an aircraft radio failure. Monitor crew coordination/CRM and knowledge of correct instrument procedures*
- *En route to the IAF, fail the INS and have the aircrew perform point-to-point navigation to the IAF (Restore INS when aircrew has demonstrated point-to-point proficiency.).*
- *Simulate ATC loss of radar contact and monitor aircrew knowledge of position reporting requirements en route to ho9me base.*
- *As the aircrew is returning to home base, simulate the role of ATC and direct them to hold. Does the aircrew display effective Mission Analysis (MA) and Situational Awareness (SA), and recognize that holding may not be a good option due to their emergency and/or fuel state? Does the aircrew display effective Assertiveness (AS) or Communication (CM) and tell ATC they are unable to accept holding?*
- *Simulate an ATIS, and report the PAR down and weather below TACAN minimums. Does the aircrew recognize this (SA) and/or develop a new game plan (Decision Making (DM) / Adaptability-Flexibility (AF))*
- *Monitor CRM skills en route to the divert airfield for additional PAR/ILS approaches.*

The Standard	Below-Average/ Unsatisfactory Characteristics
• **SITUATIONAL AWARENESS (SA)**	
Demonstrate ongoing awareness of mission status and identify problems/potential problems and the need for action. *Maintain a proper scan pattern* *Monitor for trends, changes, and abnormal conditions, and share this information with other crewmembers* *Detect deviations from normal procedures and SOPs as well as task overload, underload, or tunnel vision of crewmembers* *Identify potential impact of problems to mission completion*	*Incomplete, sporadic, unaware, off track, or misjudged*
Clarify the validity of discrepant information (e.g., conflicting, ambiguous, incomplete).	*"Not my job," or unconcerned*
• **ASSERTIVENESS (AS)**	
• *Ask questions when uncertain about decisions/procedures or objectives.*	*Unconcerned, or too timid*
State opinions, advocate course of action, and make suggestions regarding decisions/ procedures. *Request information when needed; confront ambiguities and conflicts* *Make positive calls when safety of flight is threatened; declare an emergency when needed* *Offer/recommend alternative courses of action and/or mission alternatives; provide information without being asked*	*Apathetic, or intimidated*
• **DECISION MAKING (DM)**	
Identify that a decision must be made based on situational assessment.	*Ignore the problem*
Gather, crosscheck, and evaluate information sources (other crewmembers, ATC, metro, headquarters, support, instruments/equipment) prior to making a decision; filter out erroneous/irrelevant information.	*Jump to conclusions; be misled by poor information*
Generate and discuss alternatives using relevant data; provide rationale for all decision alternatives.	*Bias, "My way or else," close-mindedness*
Anticipate the consequences of a decision alternative.	*Not thinking things through*
Choose the best alternative, communicate internally and externally, and evaluate its effectiveness.	*Indecisiveness, rigidity, faulty communications*
• **COMMUNICATION (CM)**	
Provide appropriate response to a communication (e.g., acknowledge, repeat, and request clarification).	*Ignore, respond to the feeling, incorrect response*
Use standard terminology and non-verbal signals with accurate, timely, and concise information.	*Inefficient, vague, off the subject*
• **LEADERSHIP (LD)**	
Direct and coordinate the activities of other crewmembers; delegate tasks to other crewmembers.	*Ignore others, disregard*
Monitor other crewmembers to see if they understand what is expected of them; maintain constructive atmosphere.	*Discount others, selfishness, hostility*
Encourage crewmember participation; provide constructive feedback to other crewmembers.	*Disregard, prejudice*
• **ADAPTABILITY/FLEXIBILITY (AF)**	
Alter plans and behaviors to meet situation demands; continue to function during system failures/malfunctions/changed mission.	*Inflexible, sudden loss of judgment, tunnel vision*
Step in and help other crewmembers; be receptive to input from other crewmembers. *Adapt to personality styles of other crewmembers* *Accommodate and cope with stress of other crewmembers and self*	*Lack of empathy, rigid, prejudiced*
• **MISSION ANALYSIS (MA)**	
Conduct thorough pre-mission planning and briefings, assembling mission information, estimating mission timing, and setting priorities based on mission requirements.	*Haphazard, incomplete, mistakes, inattentive*
Devise contingency plans for unplanned events.	*Unprepared, no backup plans*
Report ongoing challenges to the mission plan; offer alternatives.	*Apathetic, no backup plans, intimidated*
Conduct thorough post-mission debriefs, effectively using feedback techniques.	*Incomplete, errors, omissions*

NATOPS INSTRUMENT EVALUATION FORM

Name:
Date of Eval:
Duration:
Buno#:

Mission Planning	***Q***	***CQ***	***U***
Flight Planning			
Briefing			
Personal Flt Equipment			
Pre-Flight Line Ops			
Aircraft Acceptance			
Start			
Before Taxiing Procedures			
Taxi/Takeoff			
Taxi			
ATC Clearance			
Instrument Takeoff			
Climb/Cruise			
Departure			
Climb and Level-Off			
Procedures Enroute			
Communications			
R/T Procedures			
Visual Signals			
FF Procedures			
Basic Instruments			
*Climbing, descending, and timed turns**			
*Steep Turns**			
*Recovery from unusual attitudes**			
Positioning aircraft on predetermined VOR) / TACAN (Pt-to-Pt)			
*Partial Panel Airwork**			
Approach/Landing			
ADF / MDF			
UHF / ADF			
TACAN/VOR			
PAR/ASR			
ACLS			
Radar			
Landing			

Instrument Flight	***Q***	***CQ***	***U***
Airways Flight: The Pilot shall be required to takeoff and proceed to a destination in accordance with an ATC clearance and execute an appropriate published instrument approach, utilizing the available and pertinent navigation facilities. If weather and other conditions permit, the pilot shall be required to execute approaches (including ILS/radar or GPS) and missed approaches as applicable, utilizing as many of the existing navigation aids as practicable. The use of VOR/TACAN shall be emphasized when feasible.			
Demonstrated thorough working knowledge of the operation and use of all installed communications and navigation equipment			
Instrument Flight Emergencies			
Engine Failure			
Instrument Failure			
Communications Failure			
Navigation Equipment Failure			
Emergency/Malfunction Procedures			
Emergency/Malfunction Procedures			
Taxi			
Post Flight Procedures			
Shutdown			
Inspection and Records			
Mission Evaluation			
Mission Evaluation/Debrief			
Crew Resource Management Skills			
Decision Making			
Assertiveness			
Mission Analysis			
Communication			
Leadership			
Adaptability/Flexibility			
Situational Awareness			
Other			
Grading: *Qualified=*	***Q***		
Conditionally Qualified=		***CQ***	
Unqualified=			***U***

(*) Asterisked items above are not required when the evaluation is conducted under actual conditions.
All areas on the instrument flight event evaluation are critical. An unsatisfactory grade in any area shall result in an unsatisfactory grade for the evaluation event.

Overall Evaluation/Comments/Remarks:

Name, Rank of Evaluator: _____

Ref: NATOPS Publication A1-F18AC-NFM-000, Chapter 29

APPENDIX G

MESSAGE FORMAT FOR MANNING LEVEL SHORTFALLS

TO
CMC WASHINGTON DC AVN APP/ASM/MRA/MM/MMOA/MMEA//
INFO
CG TECOM ATB//
APPLICABLE CHAIN OF COMMAND SUCH AS:
MAG/MACG/MWSG
WING
MEF
MARFOR
MAWTS 1

CLASSIFICATION
MSGID/GENADMIN/UNIT//
SUBJ/AIRCREW MANNING LEVEL DEFICIENCY REPORT//
REF/A/DOC/NAVMC 3500.14//
AMPN/REF IS AVIATION T&R PROGRAM MANUAL.//
POC/NAME/RANK/UNIT/PHONE/EMAIL//
RMKS/1. PER REF A, COMMANDERS WHO DO NOT HAVE STABILIZED UNIT AIRCREW MANNING LEVELS AT OR ABOVE 90 PERCENT OF STAFFING GOAL WITHIN 180 DAYS OF A TEEPED OVERSEAS DEPLOYMENT SHALL REPORT THIS SHORTAGE VIA THE MANNING LEVEL DEFICIENCY REPORT TO DEPUTY COMMANDANT AVIATION APP/ASM.
2. PER REF A, (UNIT) IS WITHIN (XXX) DAYS OF TEEPED OVERSEAS DEPLOYMENT. AIRCREW SHORTAGES EXIST AS FOL:
A. MOS 7562 T/O: 30. ON HAND: 21.
B. MOS 6172 T/O: 18. ON HAND: 13.//

FLIGHT LEADERSHIP STANDARDIZATION & EVALUATION MATRIX

T/M/S	FIXED WING FLIGHT & SIMULATOR EVENTS													OTHER REQUIREMENTS		
	Section Lead			Division Lead			Flight Lead/Msn Cmdr/AMC			TACRAC		STRATRAC				
	Flights	Simulators	Prerequisites	Flights	Simulators	Prerequisites	Flights	Simulators	Prerequisites	Flights	Prerequisites	Flights	Prerequisites	FLSEs/Squadron	T&R 200/300 complete for section lead	FLSE Model Manager
KC-130J	2	0*	>100 hrs TPC 3 flts as TPC wingman	2	0*	>200 hrs as TPC, 3 flts SL				2	SL	2	DL	2	Y	1st MAW
KC-130FRT	2	0*	>100 hrs TPC 3 flts as TPC wingman	2	0*	>200 hrs as TPC, 3 flts SL				2	SL	2	DL	2	Y	1st MAW
EA-6B	6	0*	>500 hrs total, >250 hrs EA-6B (150 hrs EA-6B if Jet exp)	3	0*	>750 hrs total, >450 hrs EA-6B (250 hrs EA-6B if prior jet exp), 3 flts as SL	14	0*	>400 EA-6B hrs 3 flts as SL					3	N	2D MAW
AV-8B	6	2	>400 hours total >200 AV-8B hrs	4	0*	>600 hours total >400 AV-8B hrs, 3 flts as SL	2	0*	>500 AV-8B hrs, 3 flts as DL					2	Y	3D MAW
F/A-18	10	2	>400 hours total >200 FA-18 hrs	5	0*	>600 hours total >400 FA-18 hrs, 3 flts as SL	3	0*	>500 F/A-18 hrs, 3 flts as DL					2	N	3D MAW

ROTARY WING/TILT ROTOR FLIGHT & SIMULATOR EVENTS										OTHER REQUIREMENTS		
T/M/S	Section Lead			Division Lead			Flight Lead/Msn Cmdr/AMC			FLSEs / Sqdn	T&R 200/300 complete for section lead	FLSE Model Manager
	Flights	Simulators	Prerequisites	Flights	Simulators	Prerequisites	Flights	Simulators	Prerequisites			
MV-22	2	2	>50 hrs TAC 3 flts as TAC wingman	1	2	>600 hrs total, 200 hrs TR, 3 flts as SL	1	0*	>750 hrs total, 3 flts as DL	2	Y	2D MAW
CH-53	4	0*	>50 hrs HAC 3 flts as HAC wingman	3	0*	>600 hrs total, (200 hrs RW, 50 hrs in model), 3 flts as SL	1	0*	>750 hrs total, 3 flts as DL	2	Y	2D MAW
CH-46	7	0*	>50 hrs HAC, 3 flts as HAC wingman	4	0*	>600 hrs total, (200 hrs RW, 50 hrs in model), 3 flts as SL	1	0*	>750 hrs total, 3 flts as DL	2	Y	3D MAW
AH-1W	3	0*	>50 hrs AHC, 3 flts as AHC wingman	3	0*	>600 hrs total, (200 hrs RW, 50 hrs in model), 3 flts as SL	1	0*	>750 hrs total, 3 flts as DL	3	Y	3D MAW
UH-1N/Y	3	0*	>50 hrs UHC, 3 flts as UHC wingman	3	0*	>600 hrs total, (200 hrs RW, 50 hrs in model), 3 flts as SL	1	0*	>750 hrs total, 3 flts as DL	3	Y	3D MAW

*Syllabus shall include simulator optional event codes to support network simulation.

Helicopter Aircraft Commander (HAC); Transport Plane Commander (TPC); Tiltrotor Aircraft Commander (TAC), Section Lead (SL), Division Lead (DL)